شرائح الهستو

الجديده &القديمه

محتوى pdf:-

A/شرائح سنه أولى الجديده مأخوذة من اللحنه العلمية ل دفعه 35 لهم كل الشكر والتقدير

☆شرائح سنه ثانيه

الجديده ف الي نزلوهن لنا في المعامل صورتهم وكتبت عليهم الي دكتورة قالت نركز عليه الكتابه على الصوره

مش مرتبه لأنه كتبتهم سريع بعد كل معمل لكن الصور تفي بالغرض

B/السلايدات القديمه

C/ صور من أطلس ديفيوري لفهم slidesبشكل أفضل

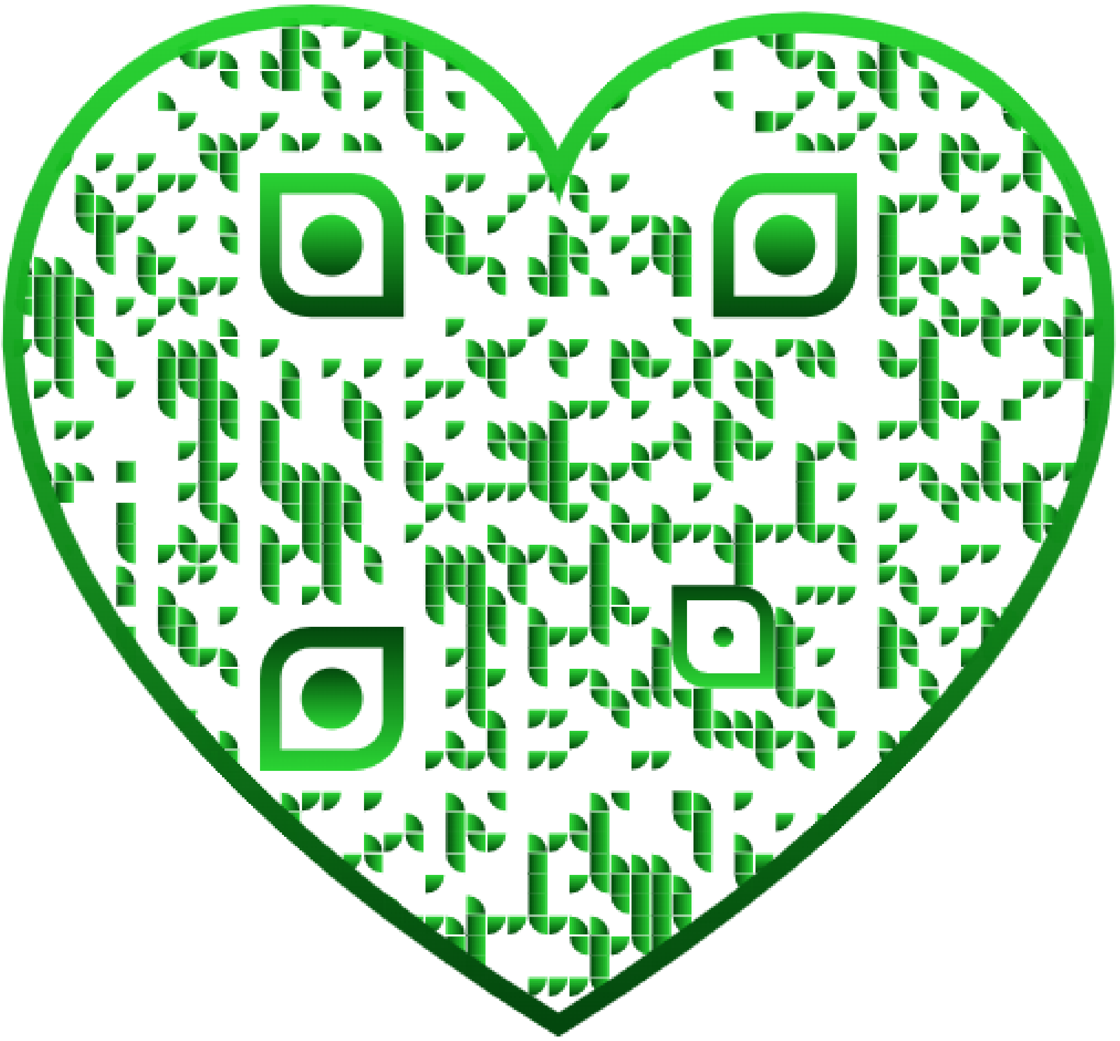
D/ أجزاء الميكروسكوب

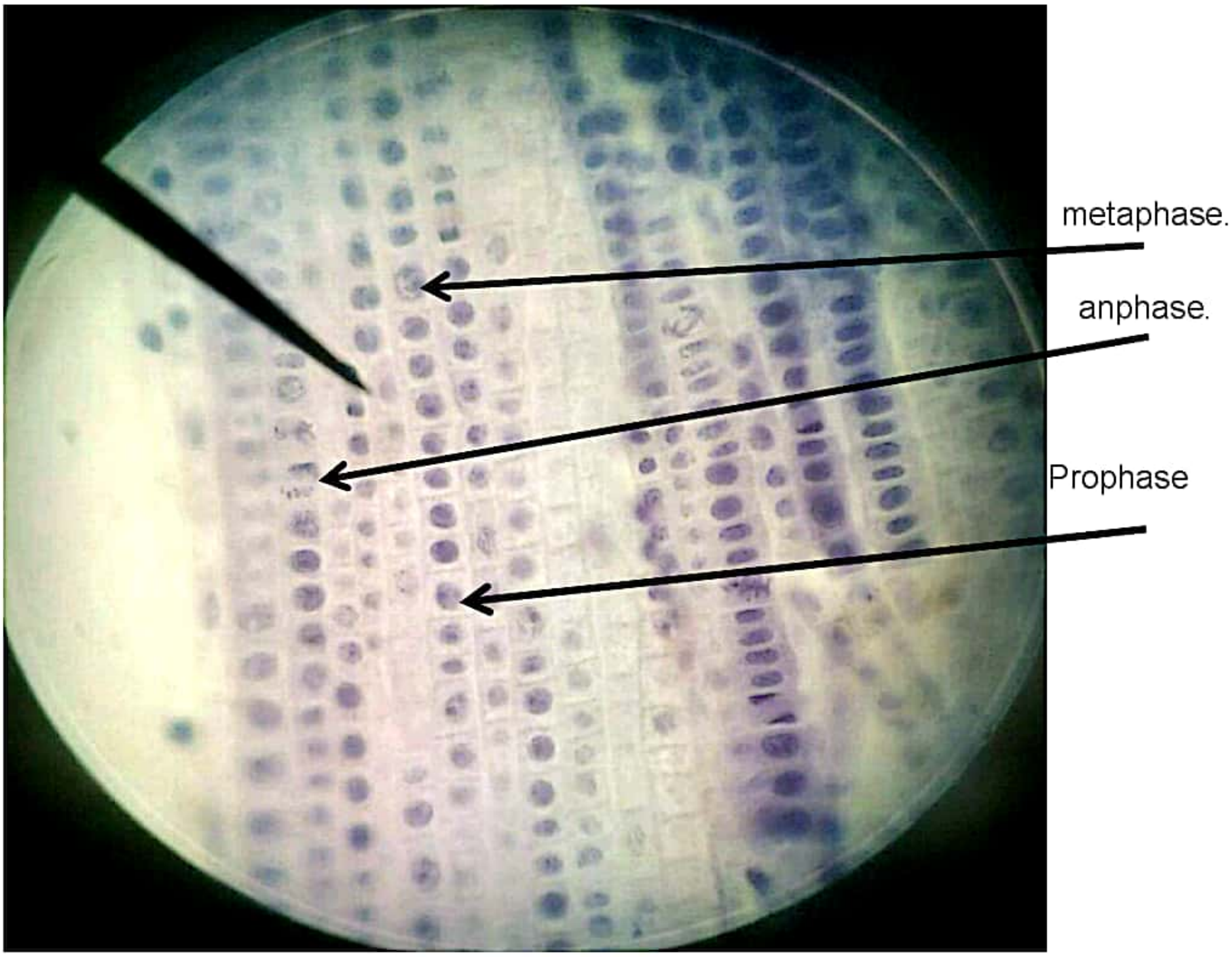
E/ كيفيه طرح أسئلة الامتحان العملي المعتادة

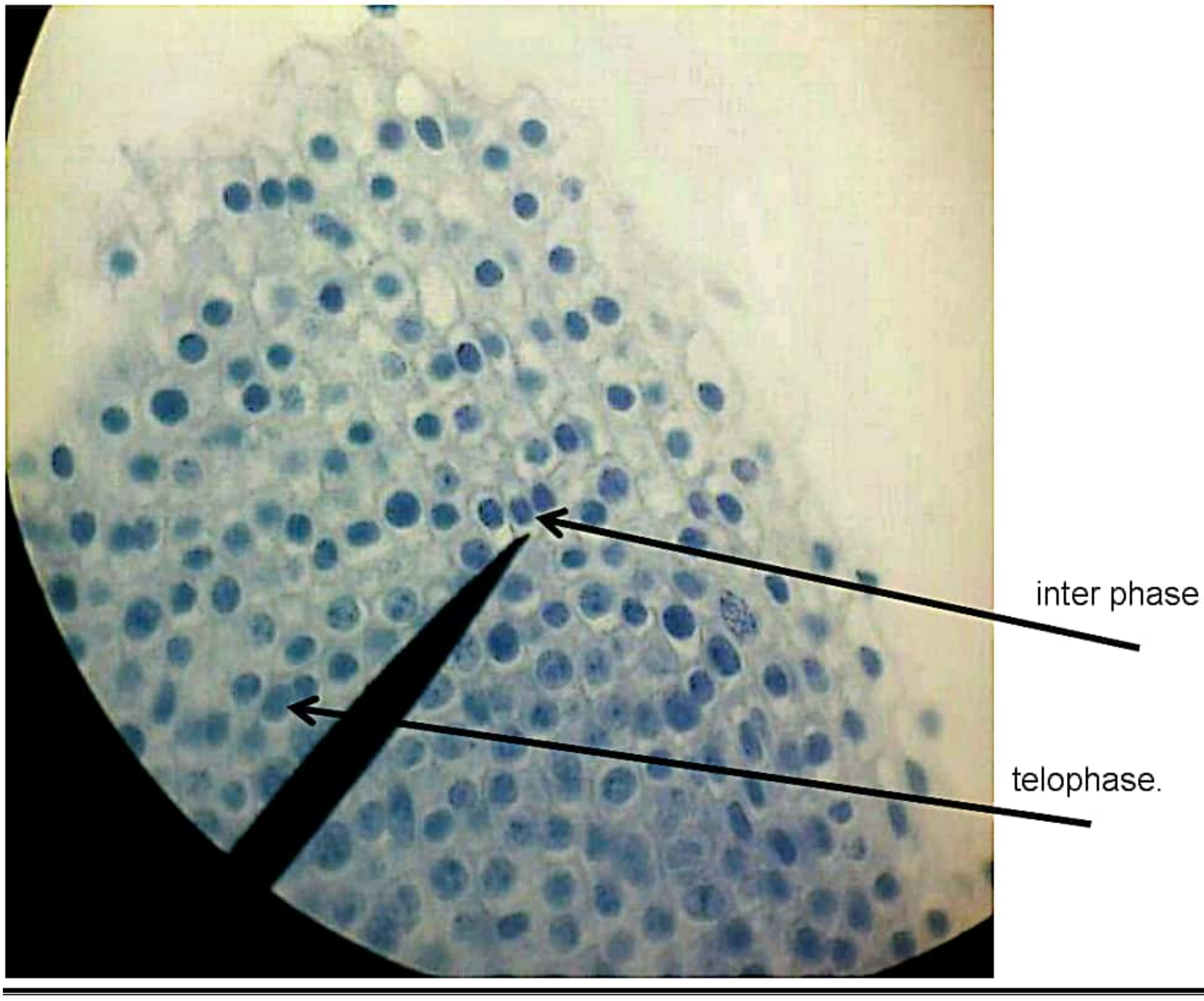
Done by:-

Yousra M. AL shawesh

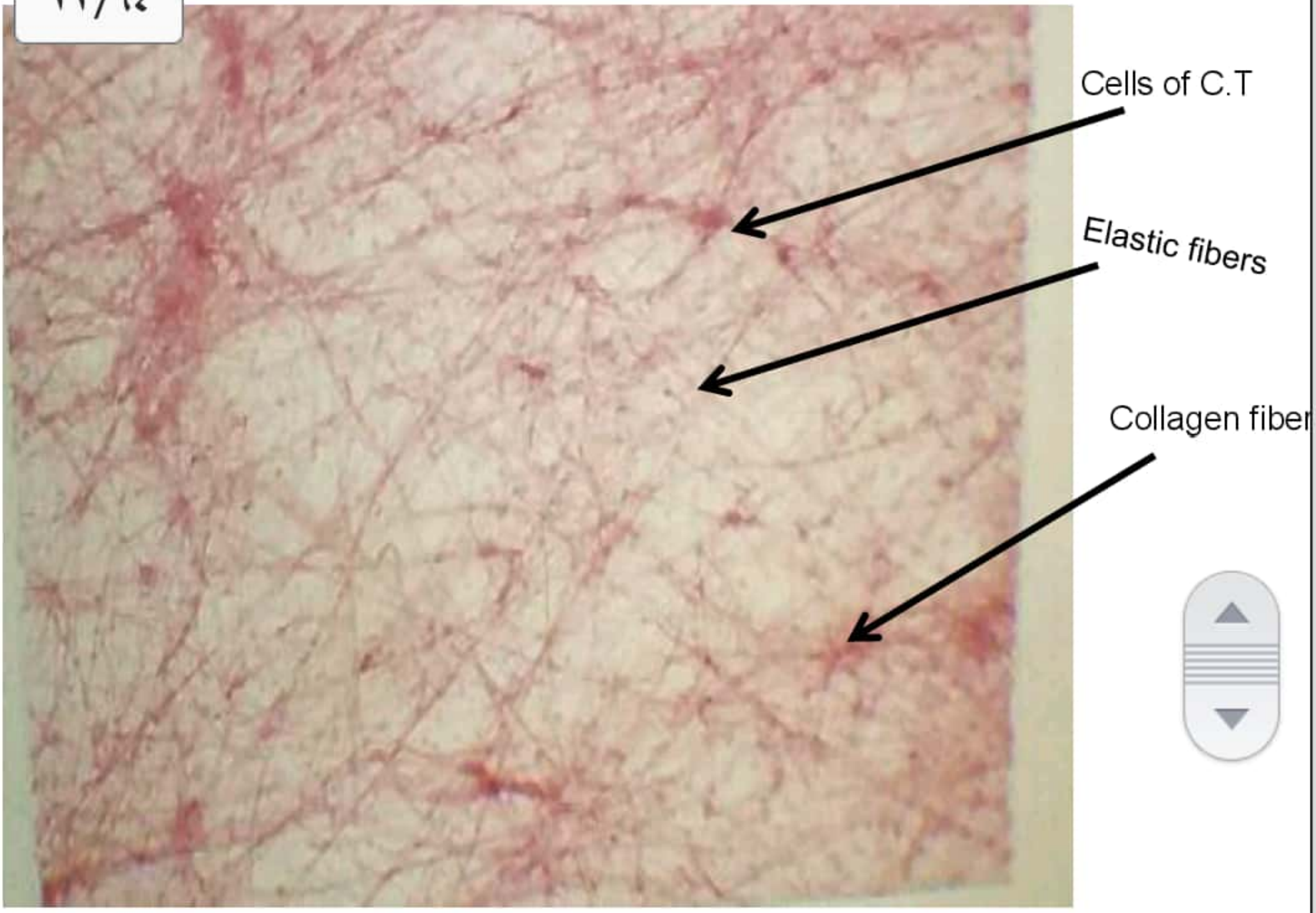
دفعة 35 ♡



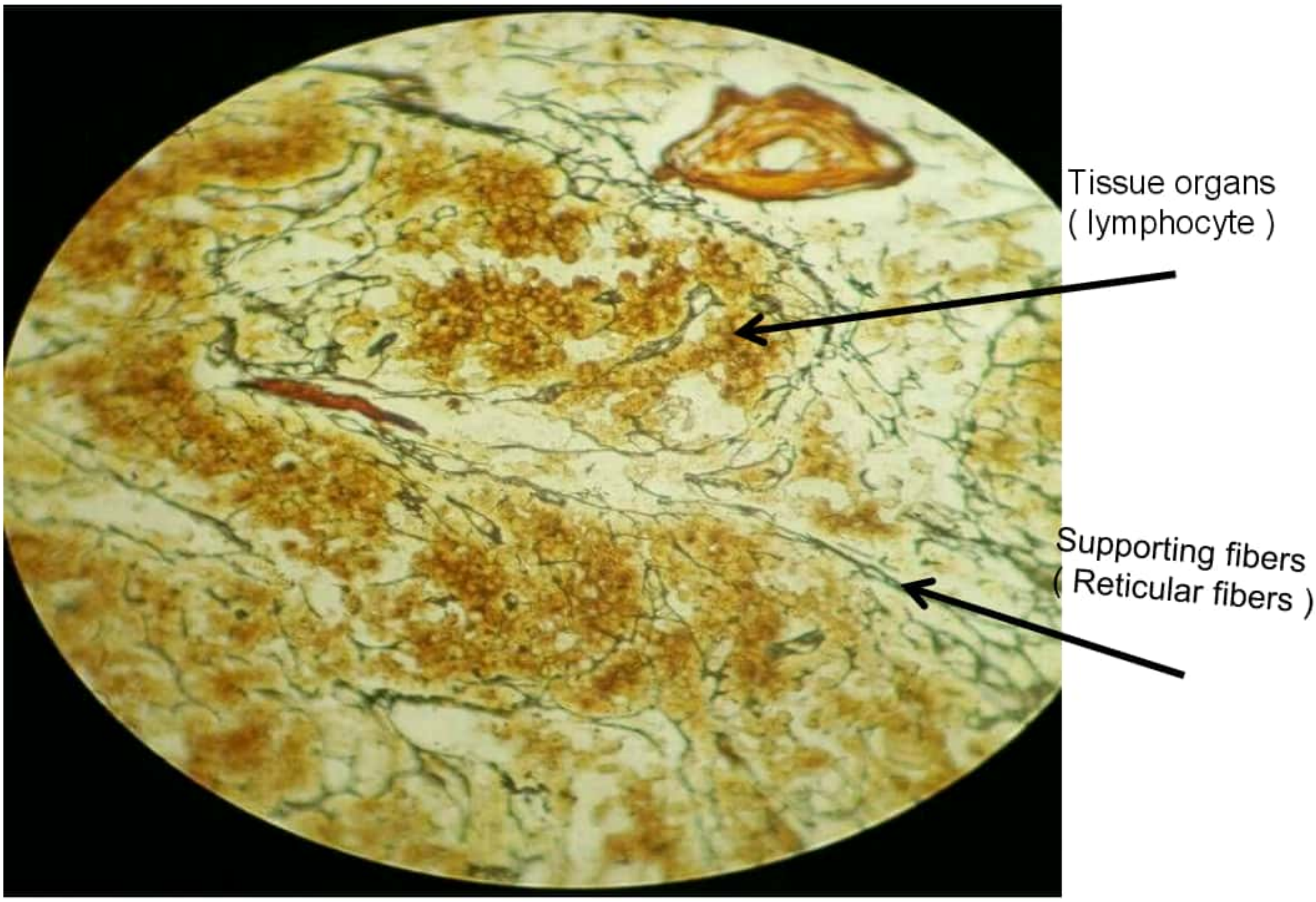

metaphase.
anphase.
Prophase


inter phase
telophase.

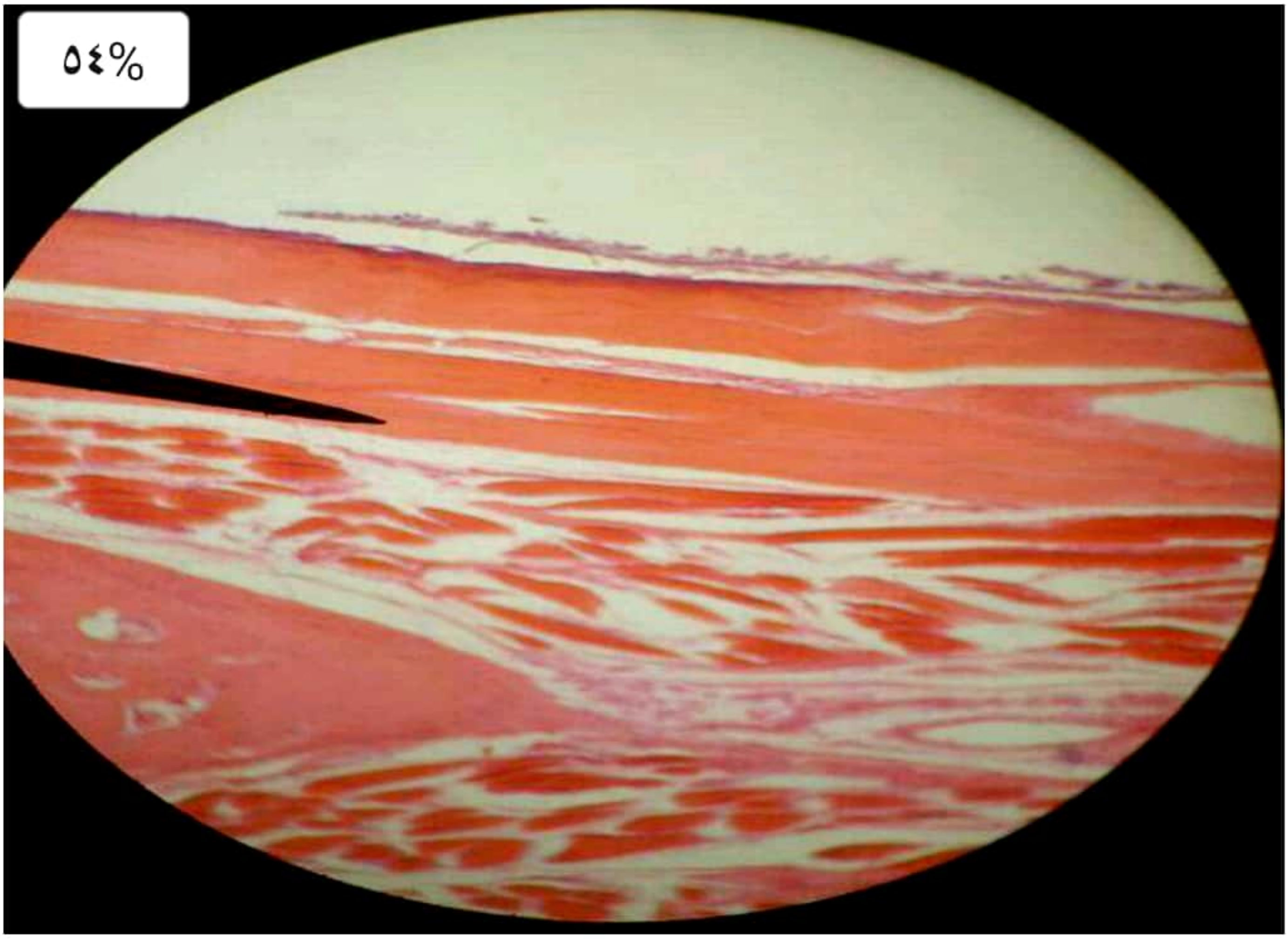
Areolar C.T - with H.E


Cells of C.T
Elastic fibers
Collagen fiber

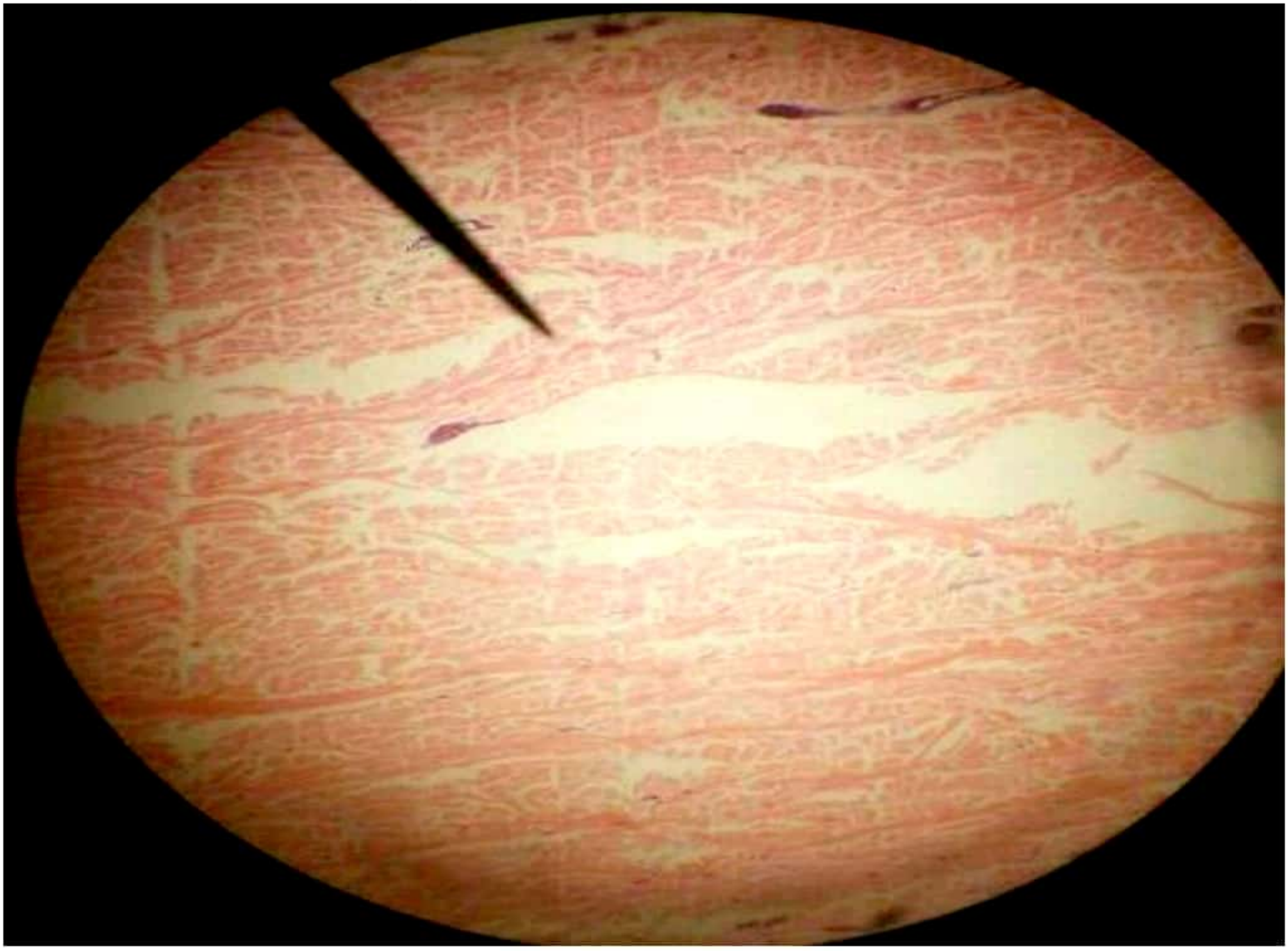
Reticular C.T in the lympatics


Tissue organs
(lymphocyte)
Supporting fibers
(Reticular fibers)

Regular C.T in the tendins

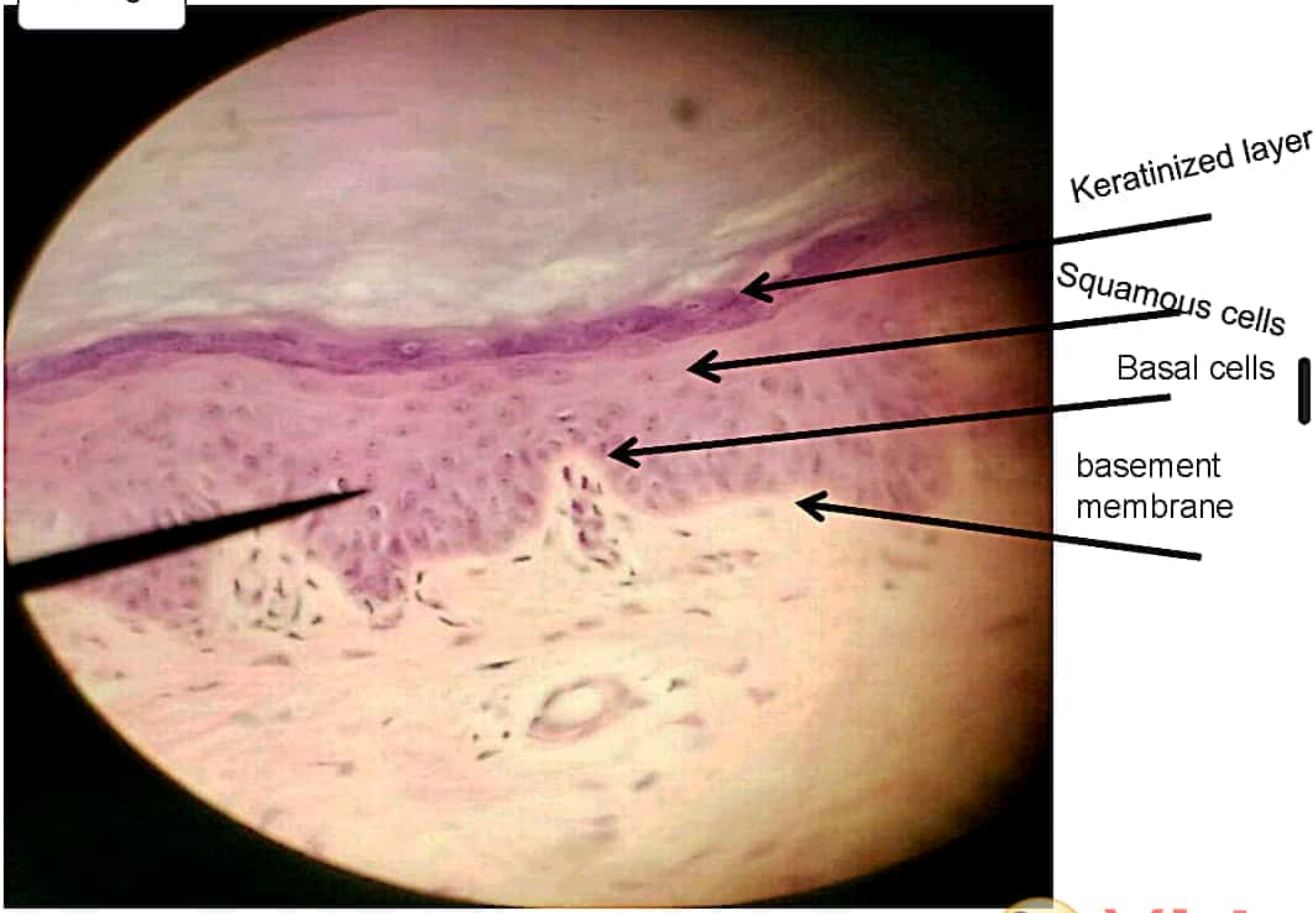


Irregular C.T in the dermis



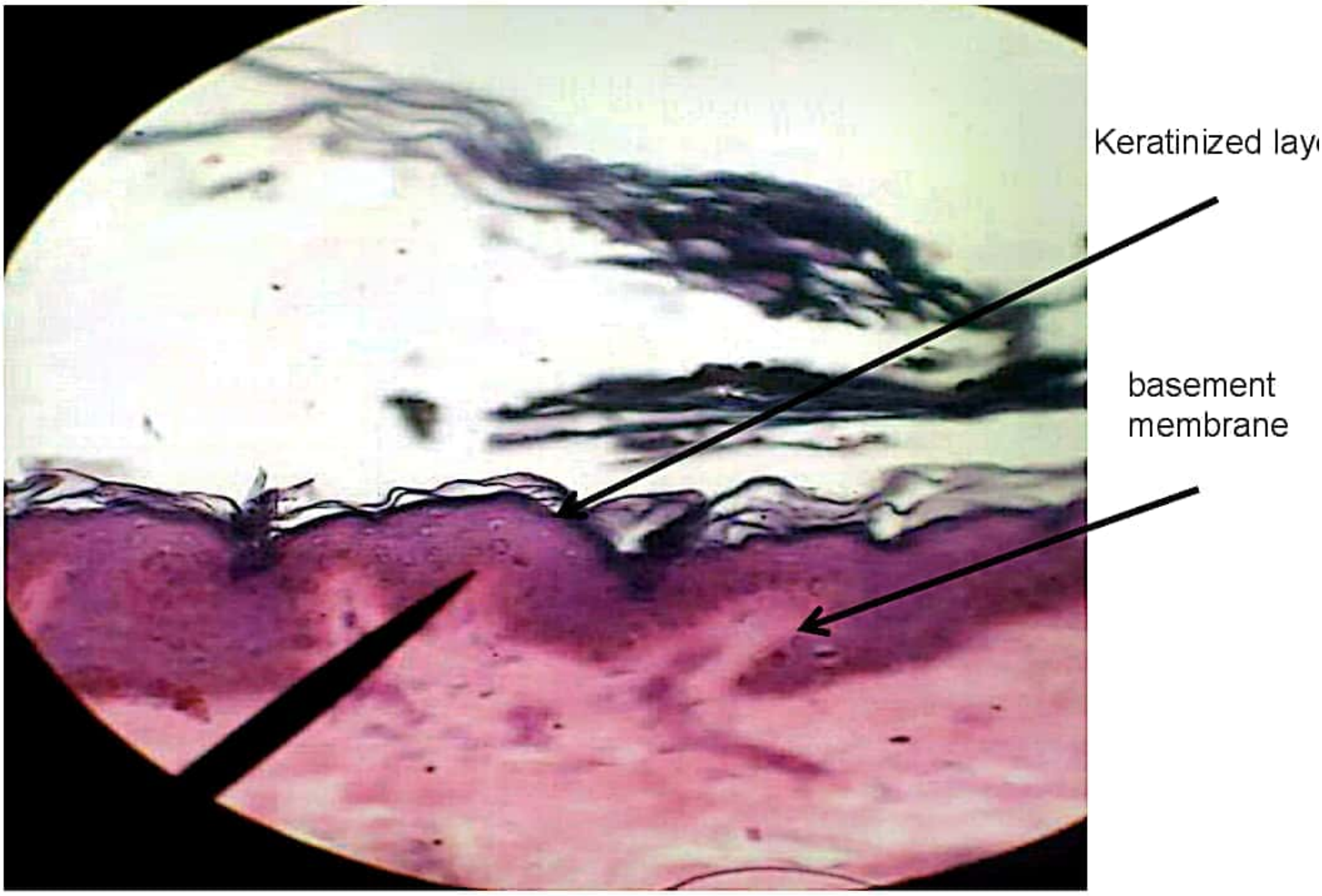
٥٤%

Stratified spuanous keratinized epi in the skin stain H.E

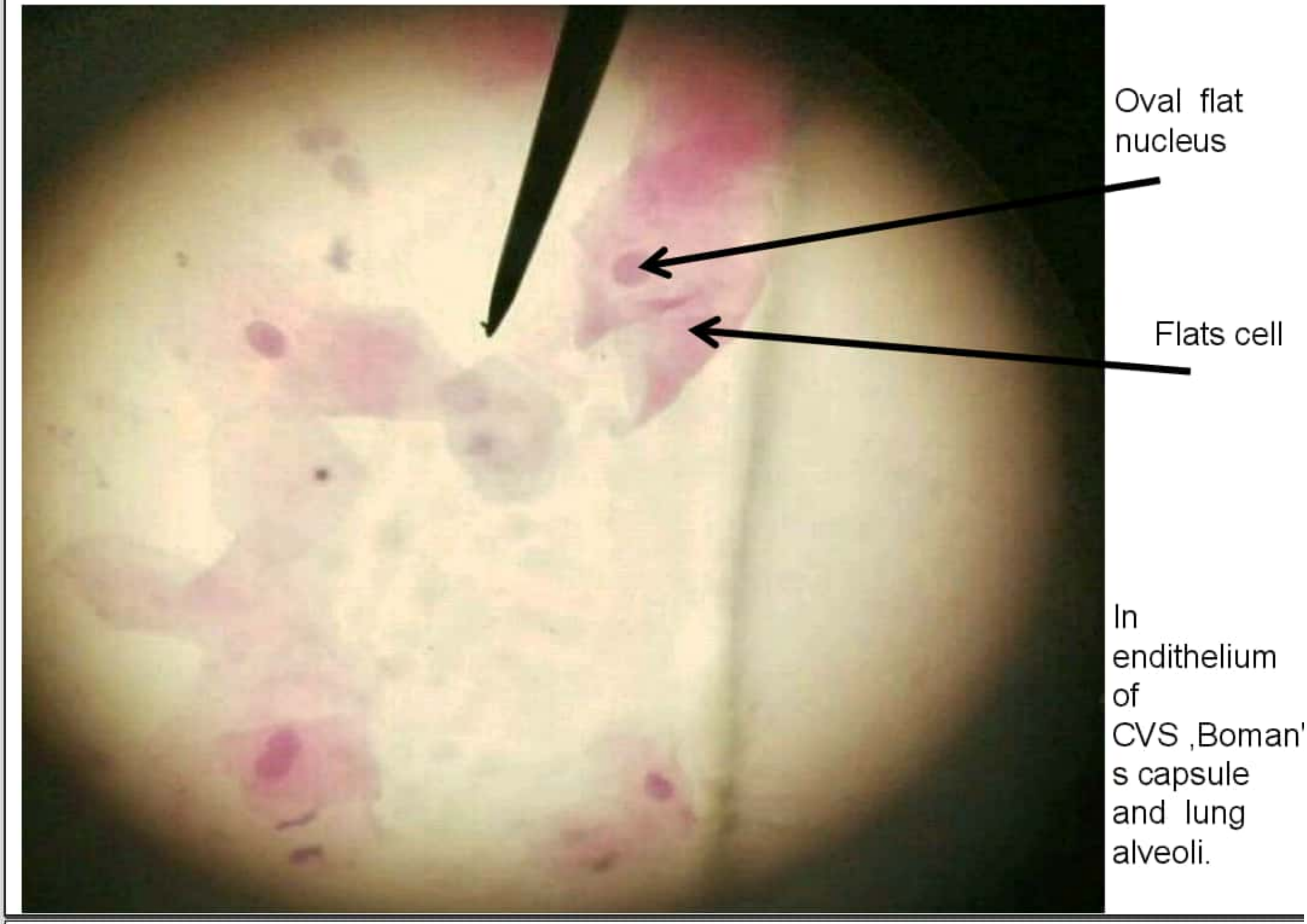

Keratinized layer
Squamous cells
Basal cells
basement membrane

YM

Stratified spuanous keratinized epi in the skin stain H.E

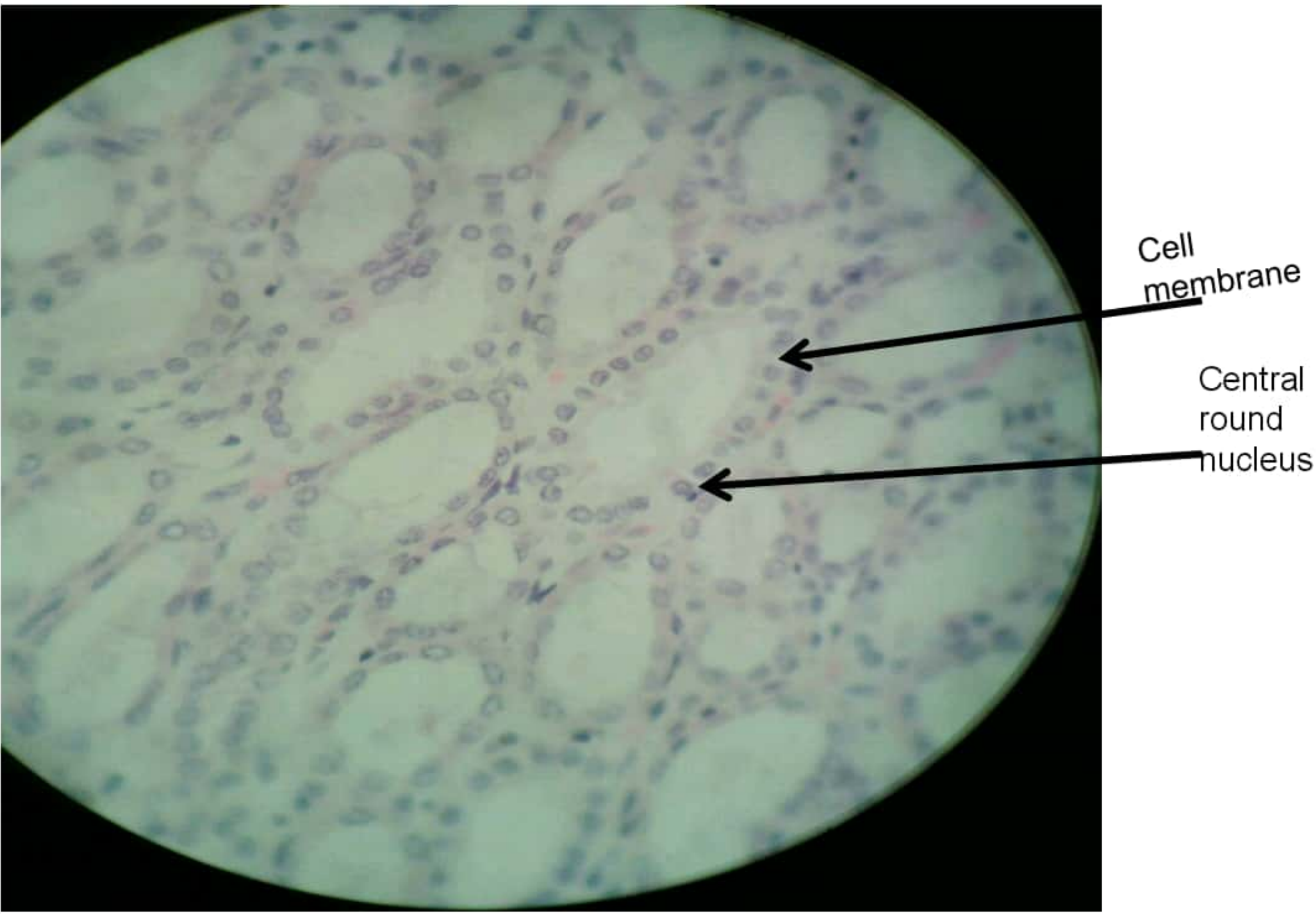

Keratinized lay
basement membrane

Simple sauamous Epithelium. Stain H.E

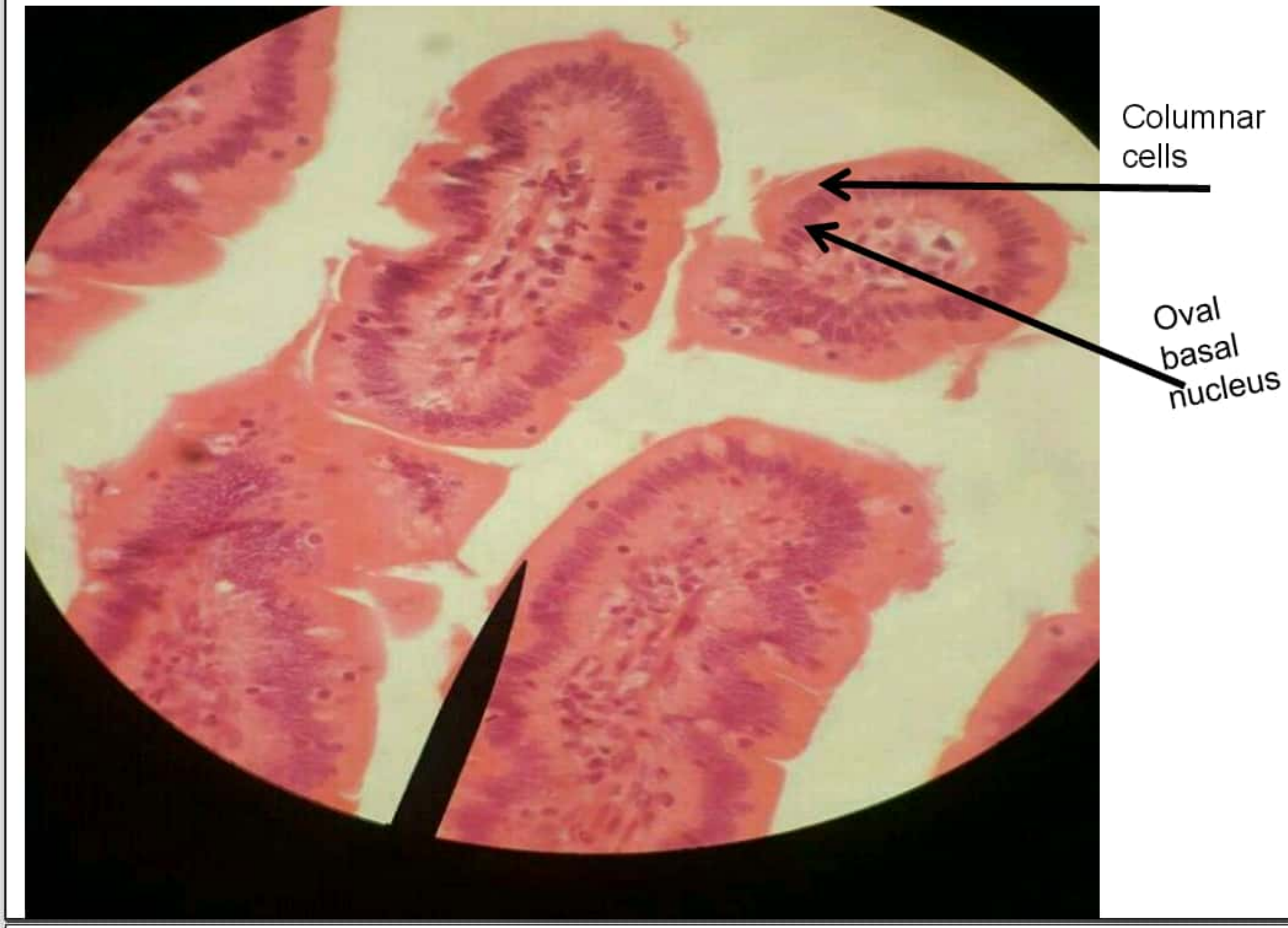

Oval flat nucleus
Flats cell

In endithelium of CVS ,Boman's capsule and lung alveoli.

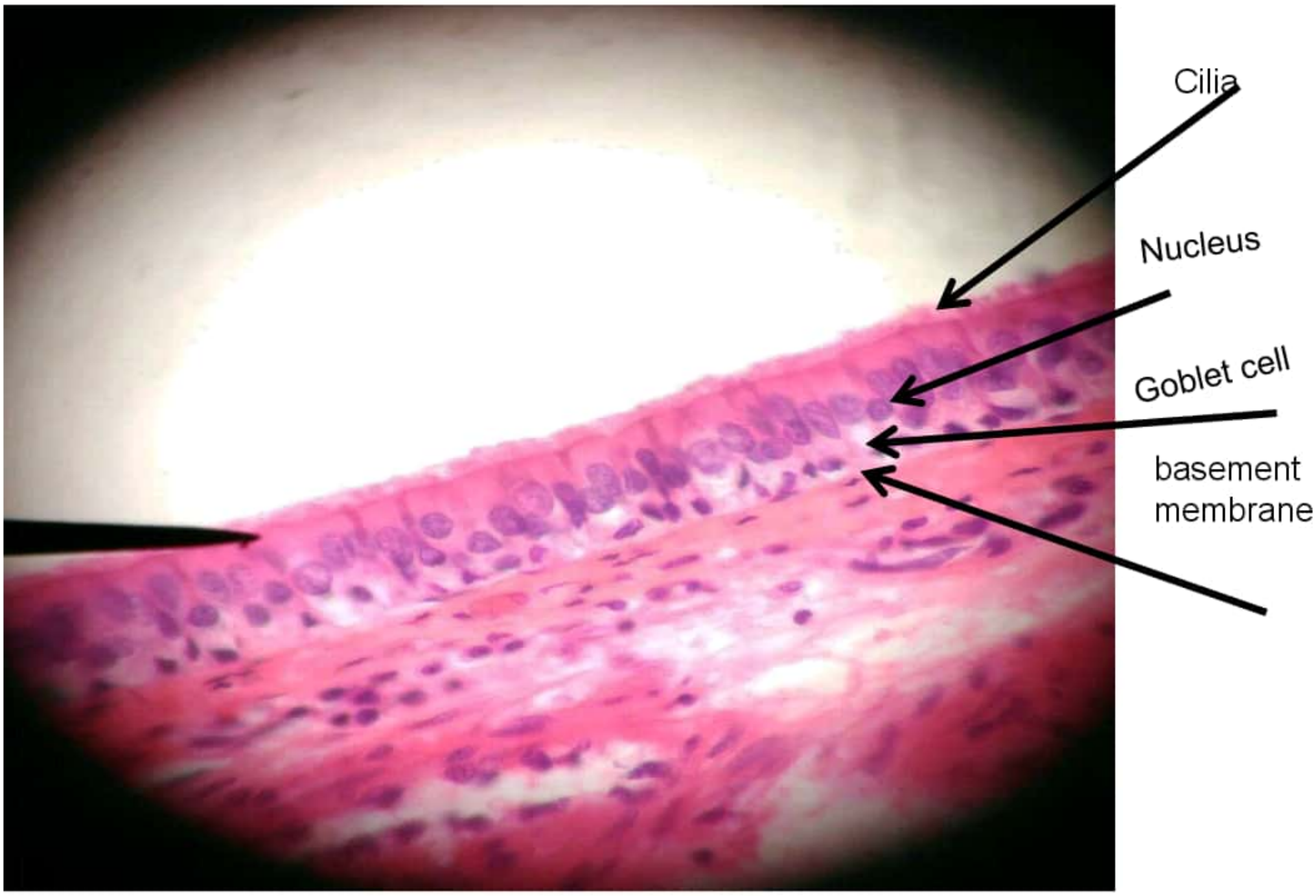
Simple cuboidal epi in kidney stain H.E


Cell membrane
Central round nucleus

Simple columnar epi in duodenum stain H.E

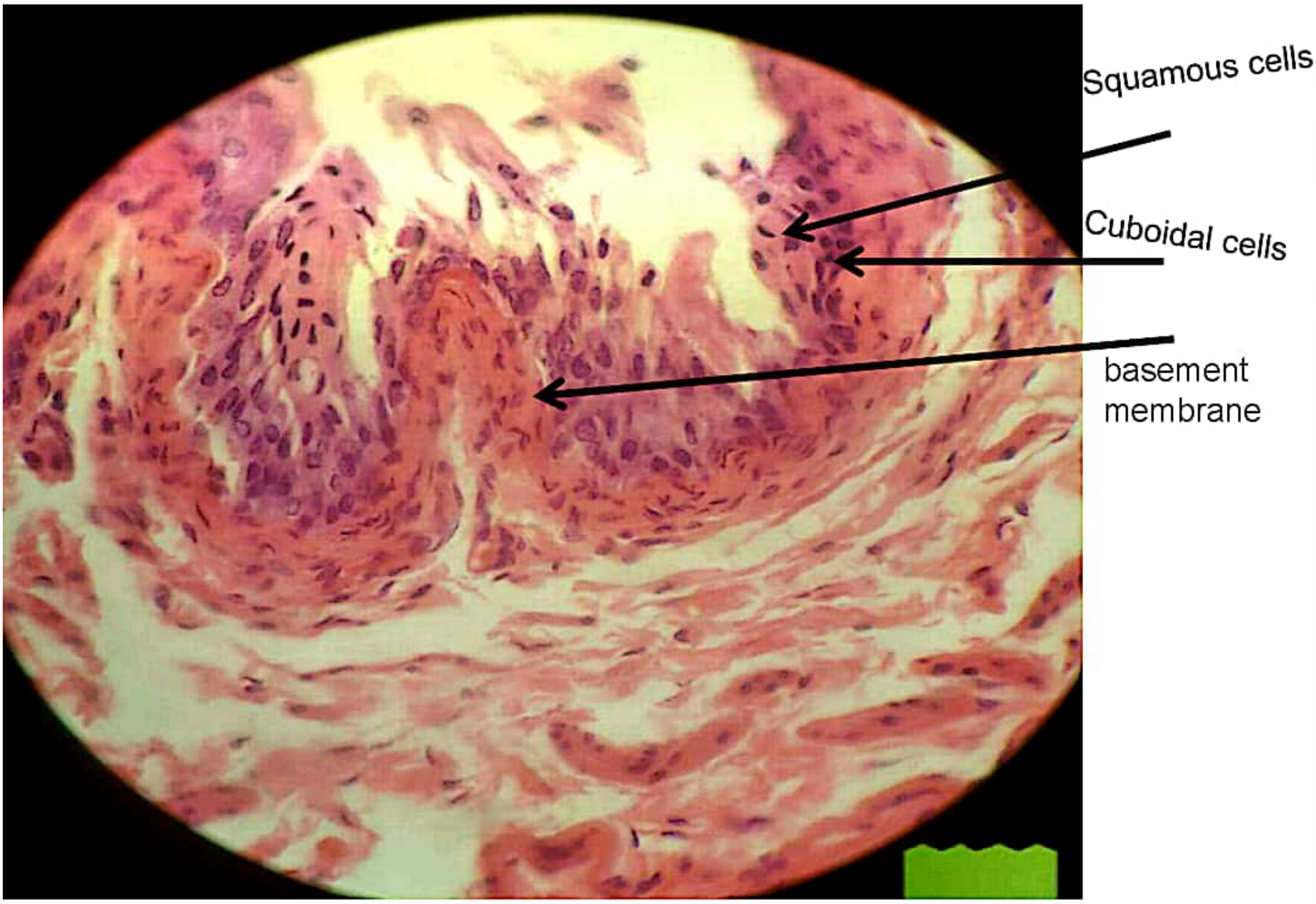

Columnar cells
Oval basal nucleus

Pseudo stratified columnar ciliated epi. In trachea stain H.E

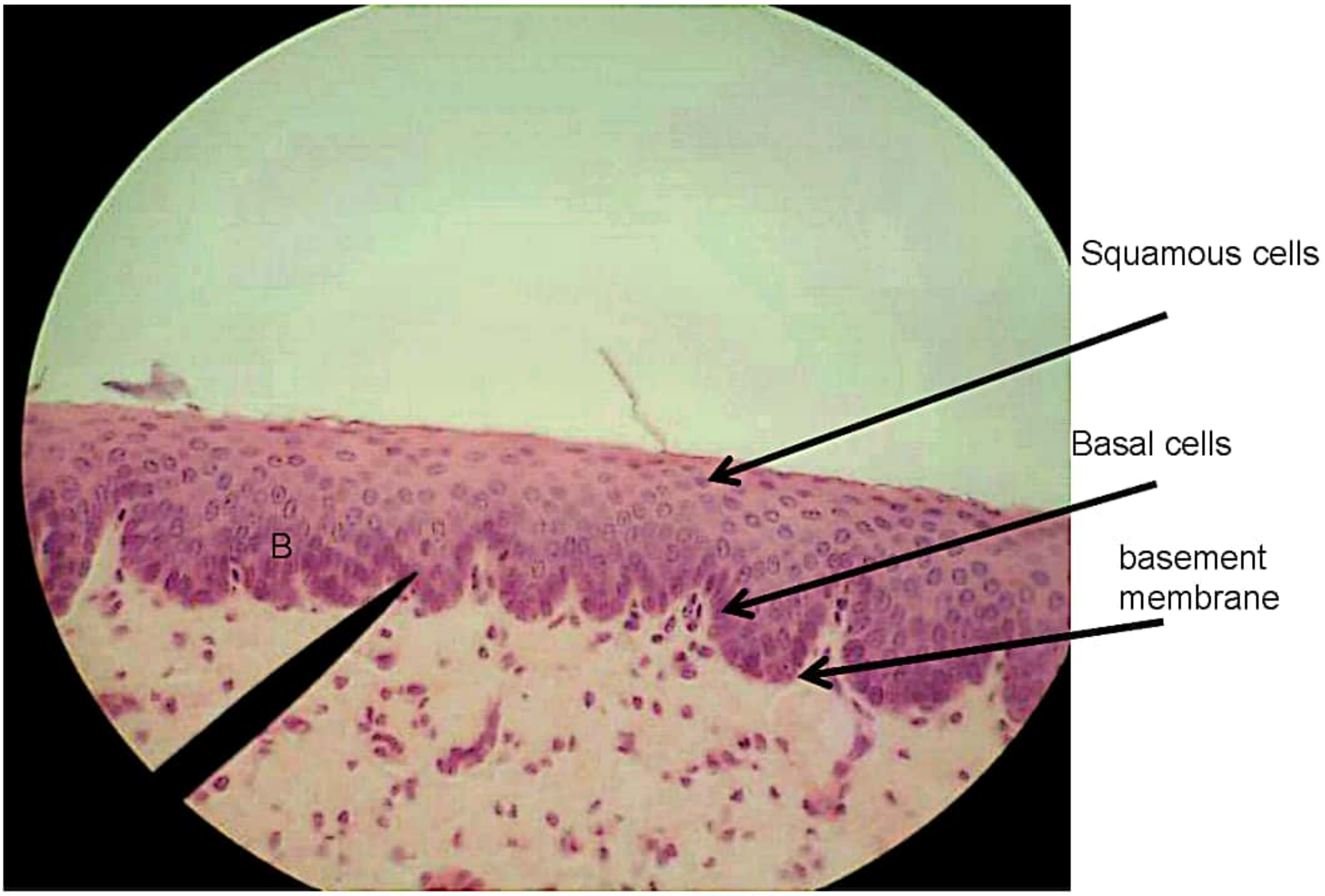

Cilia
Nucleus
Goblet cell
basement membrane

Trazitional epi in urinary bladder stain. H.E

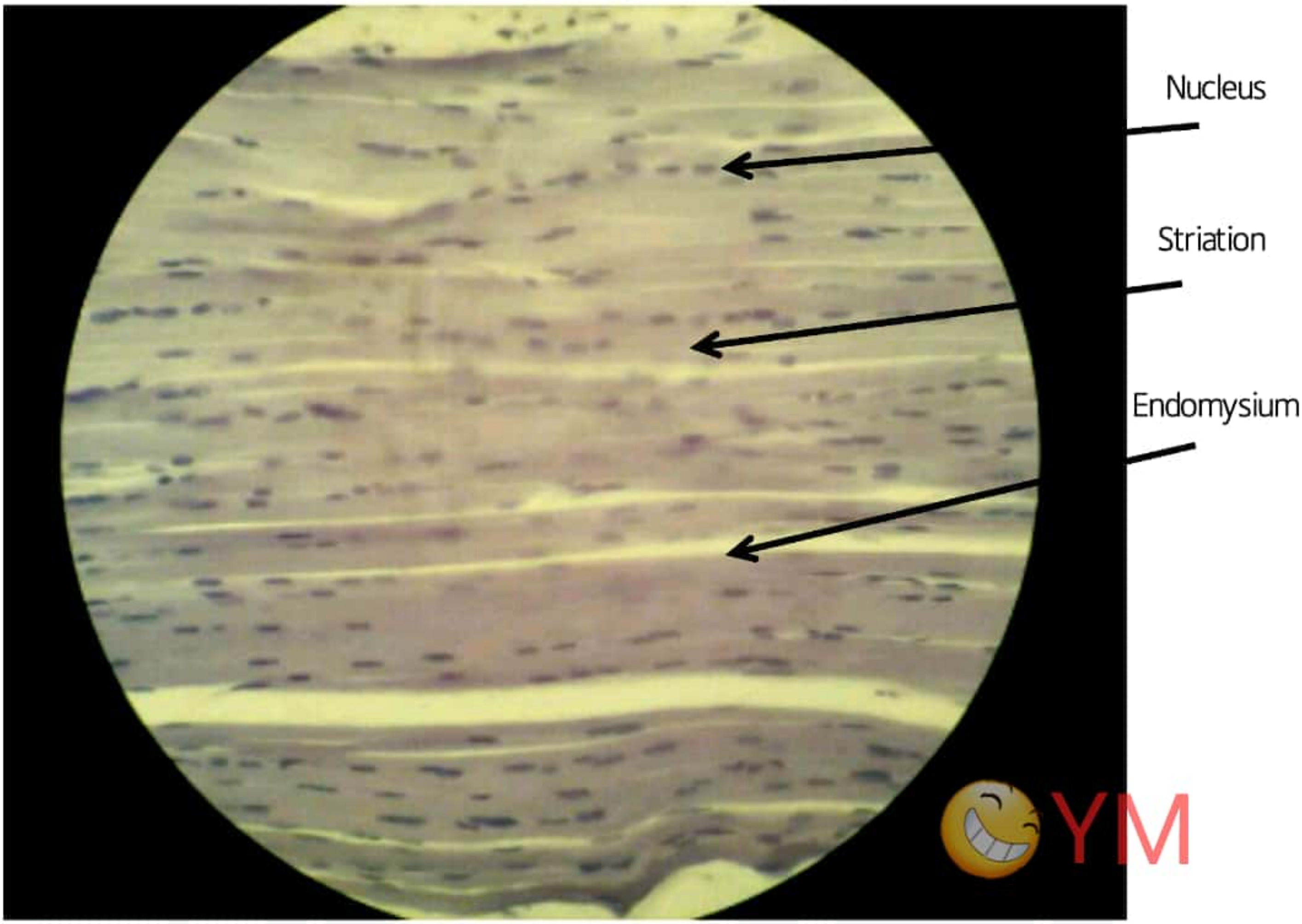
Trazitional epi in urinary bladder stain. H.E


Squamous cells
Cuboidal cells
basement membrane

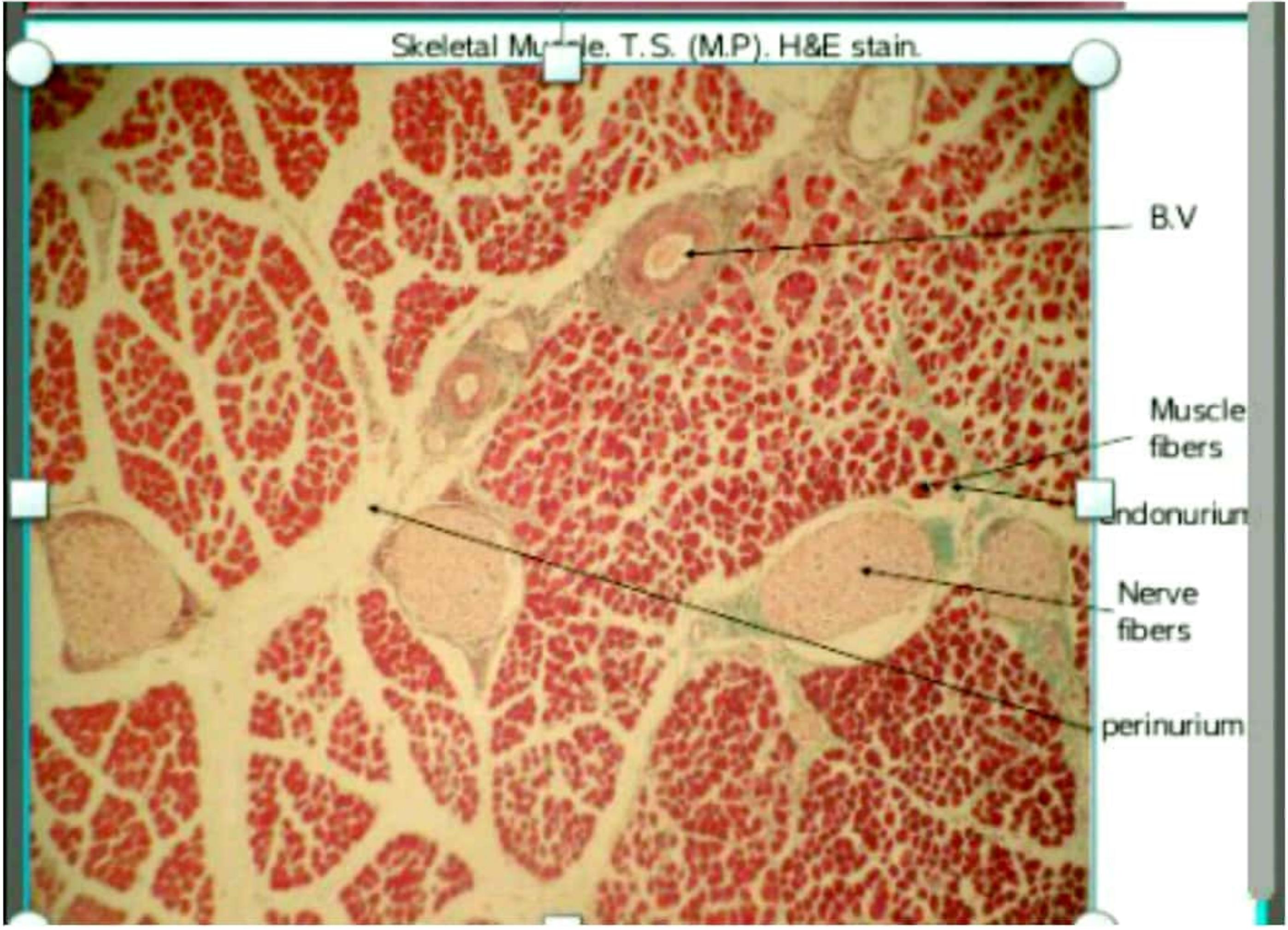
stratified squamous non kerAtinised epi in essophagus stain H.E


Squamous cells
Basal cells
basement membrane
B

Skeletal muscle with special stain (L.S)

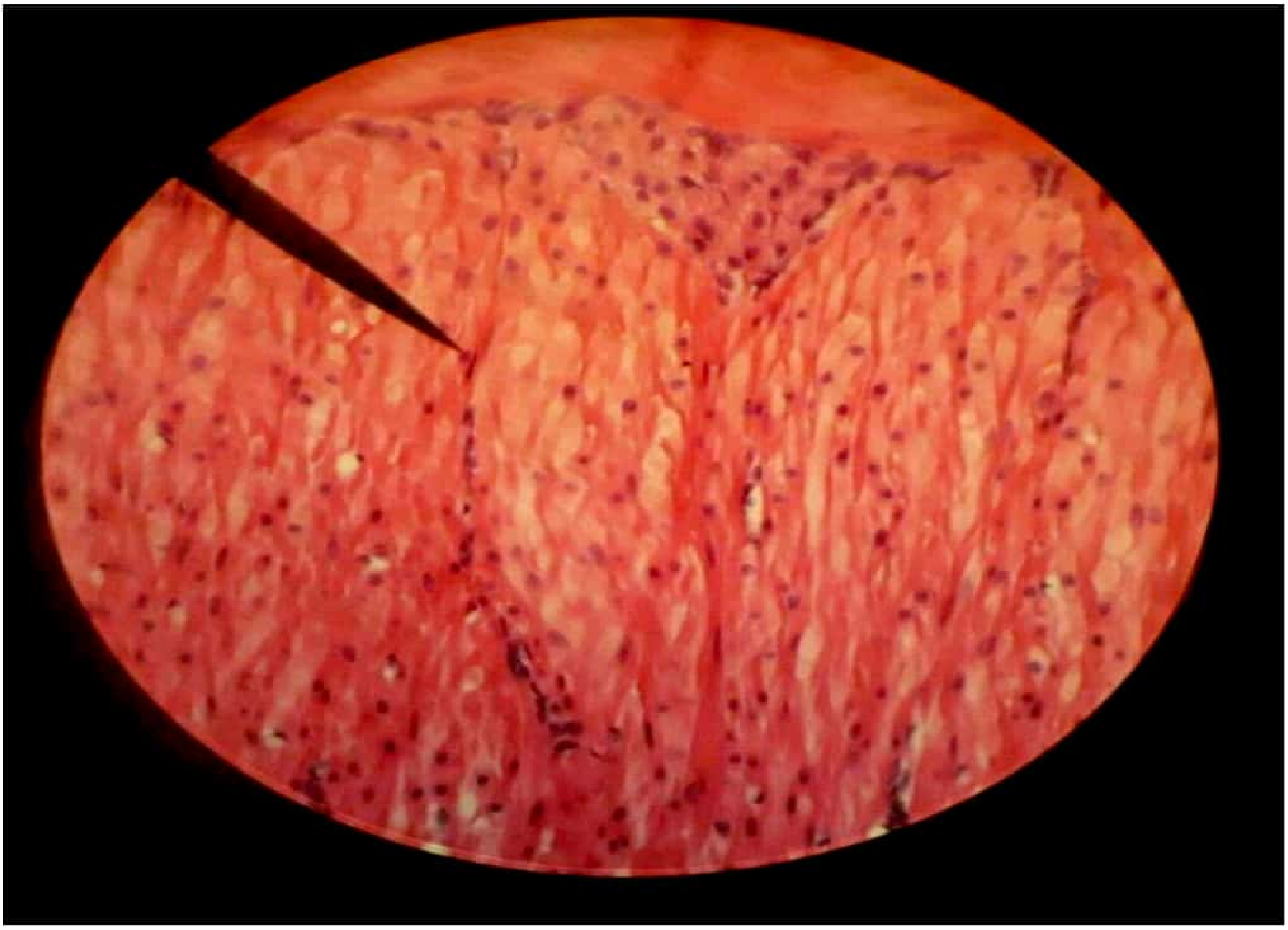

Nucleus
Striation
Endomysium

YM


Skeletal Mu le. T.S. (M.P). H&E stain.

B.V
Muscle fibers
ndonurium
Nerve fibers
perinurium

Smooth muscle with H&E

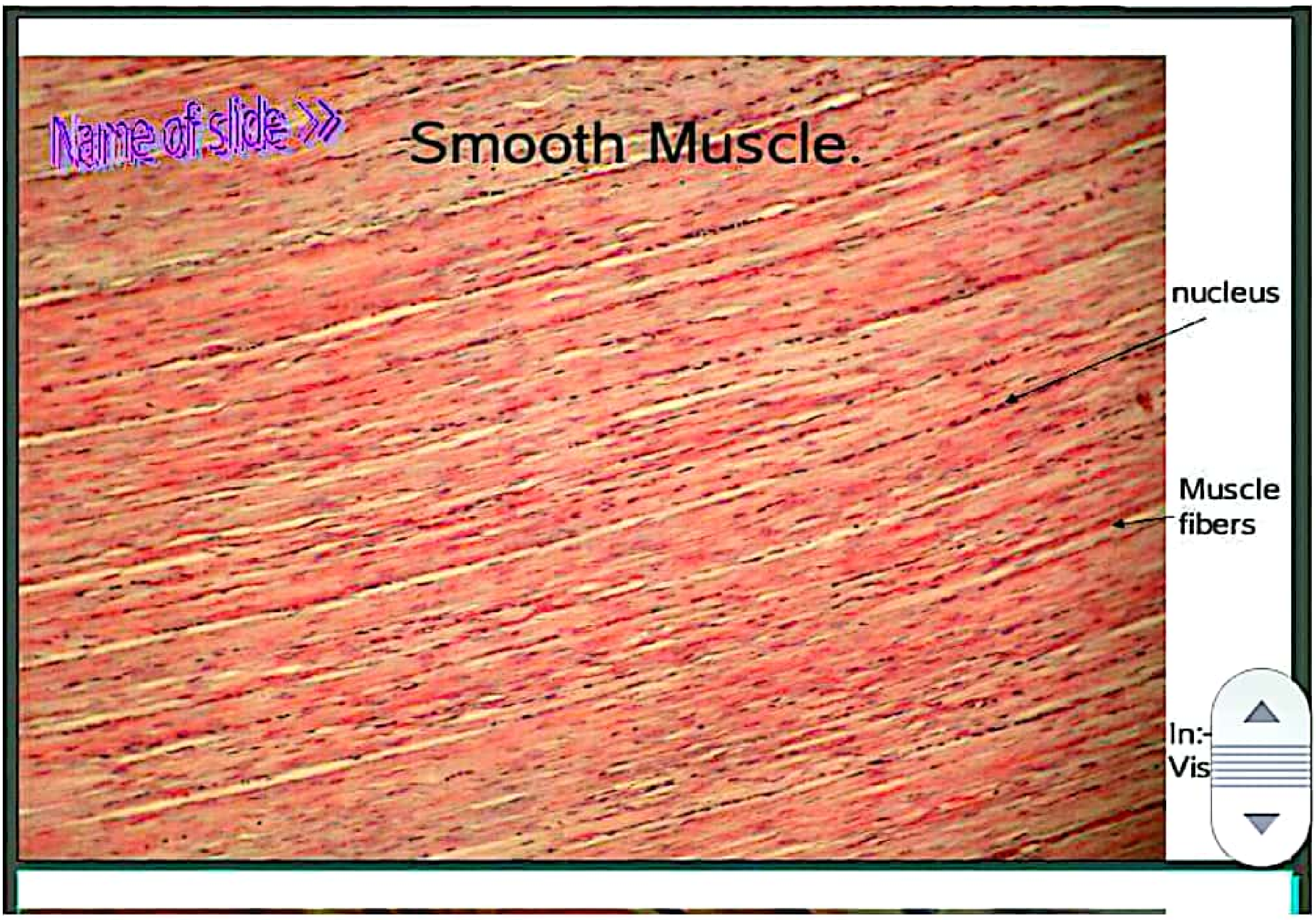


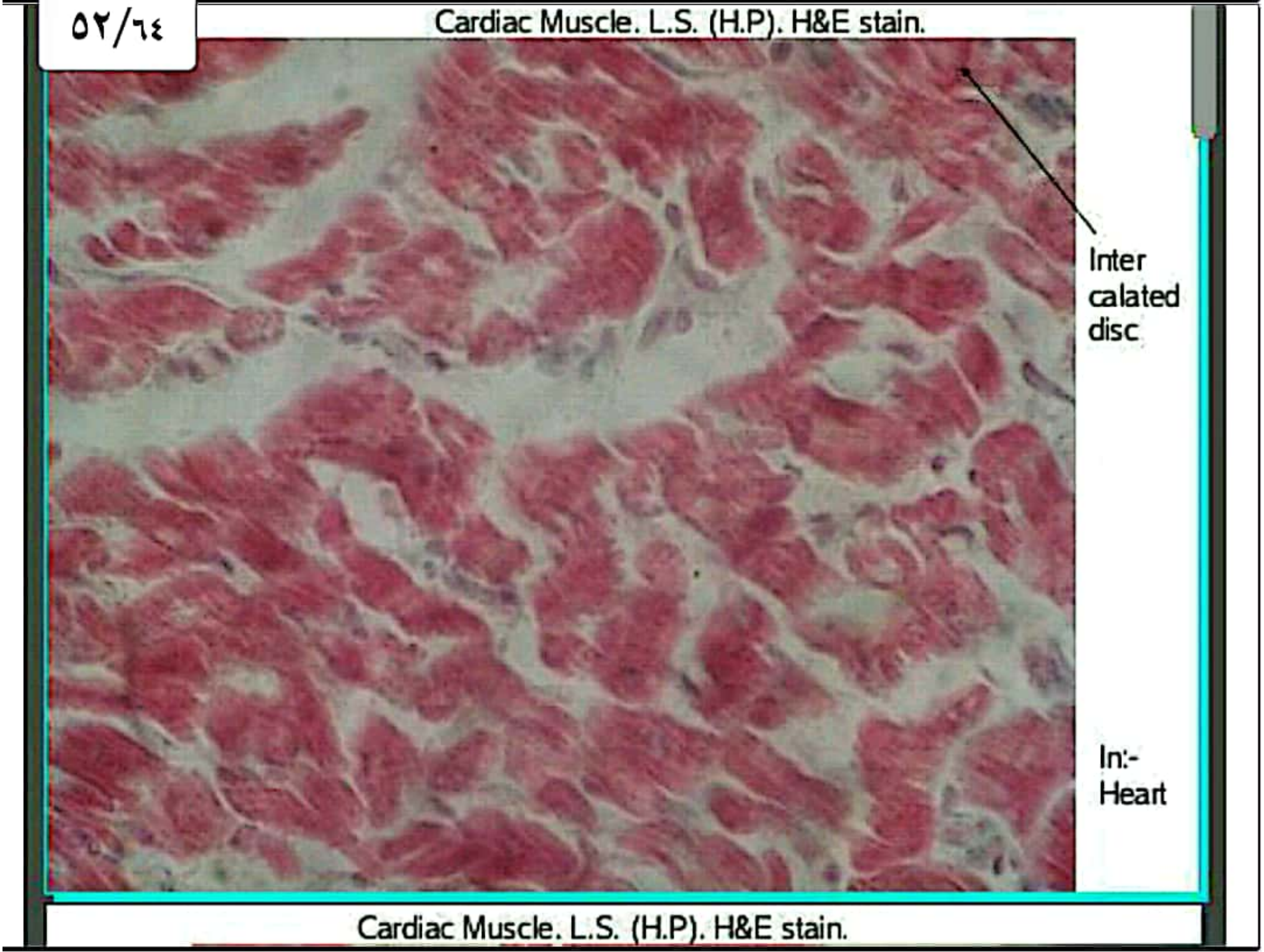
(smooth muscle)

- non striated, unvoluntary & vesiral.

- stain with H&E → eosinophilic.

- Spindal in shape.
- single central nucleus.


Name of slide >>
Smooth Muscle.
nucleus
Muscle fibers
In:-
Vis

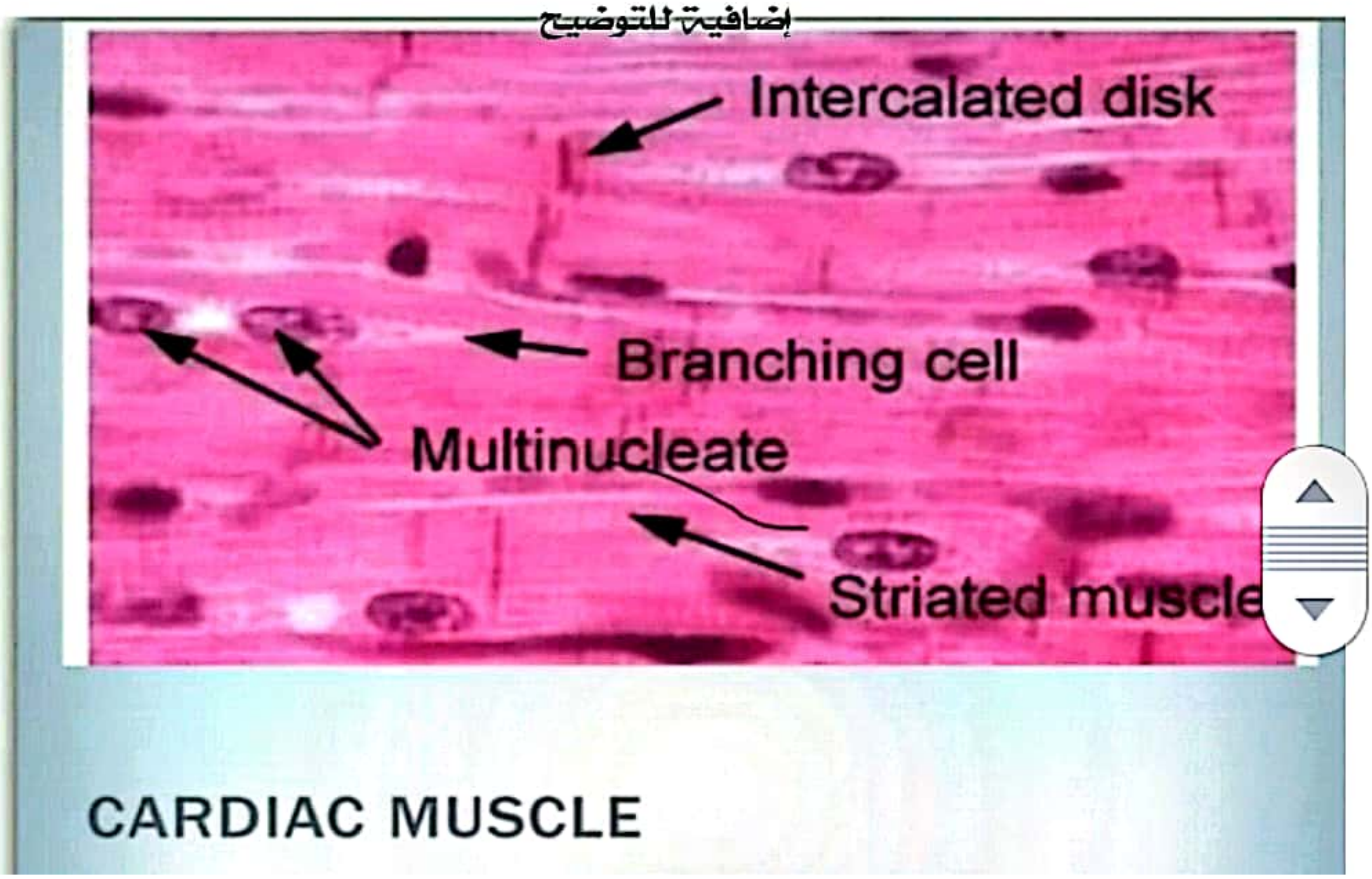


Cardiac Muscle. L.S. (H.P). H&E stain.

Inter
calated
disc
In:-
Heart

Cardiac Muscle. L.S. (H.P). H&E stain.

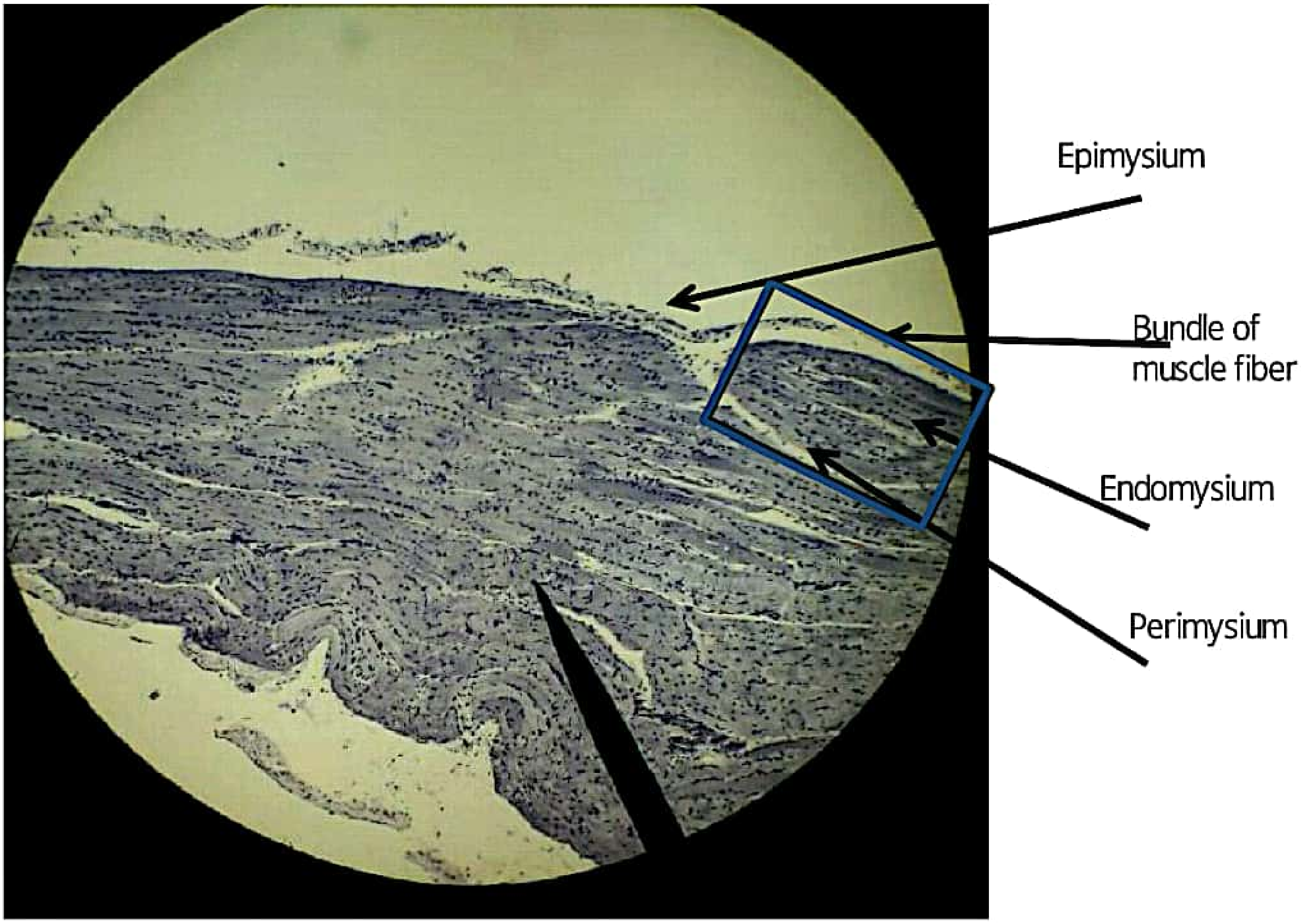
إضافية للتوضيح



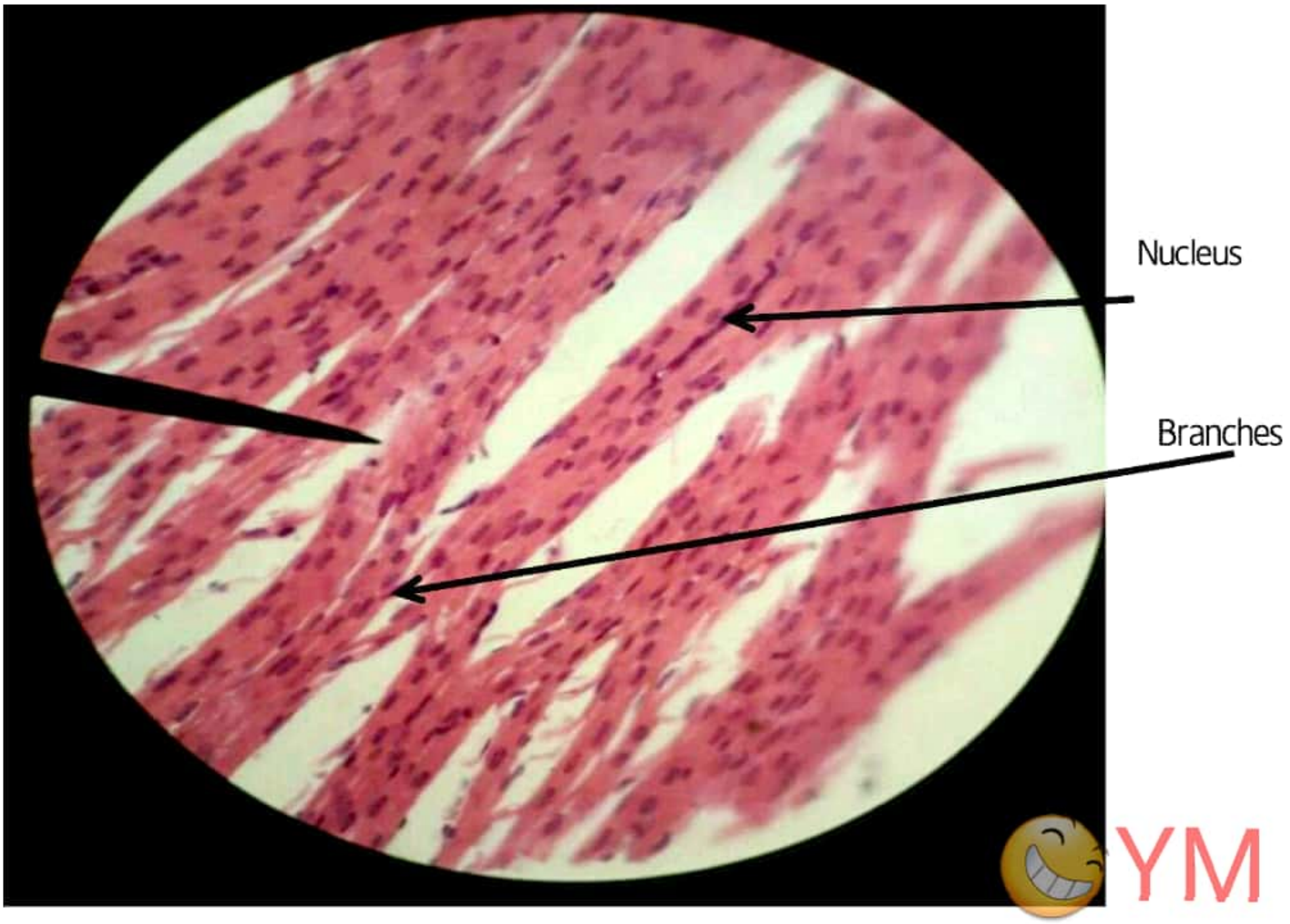
Intercalated disk
Branching cell
Multinucleate
Striated muscle

CARDIAC MUSCLE

Skeletal muscle with special stain (T.S)

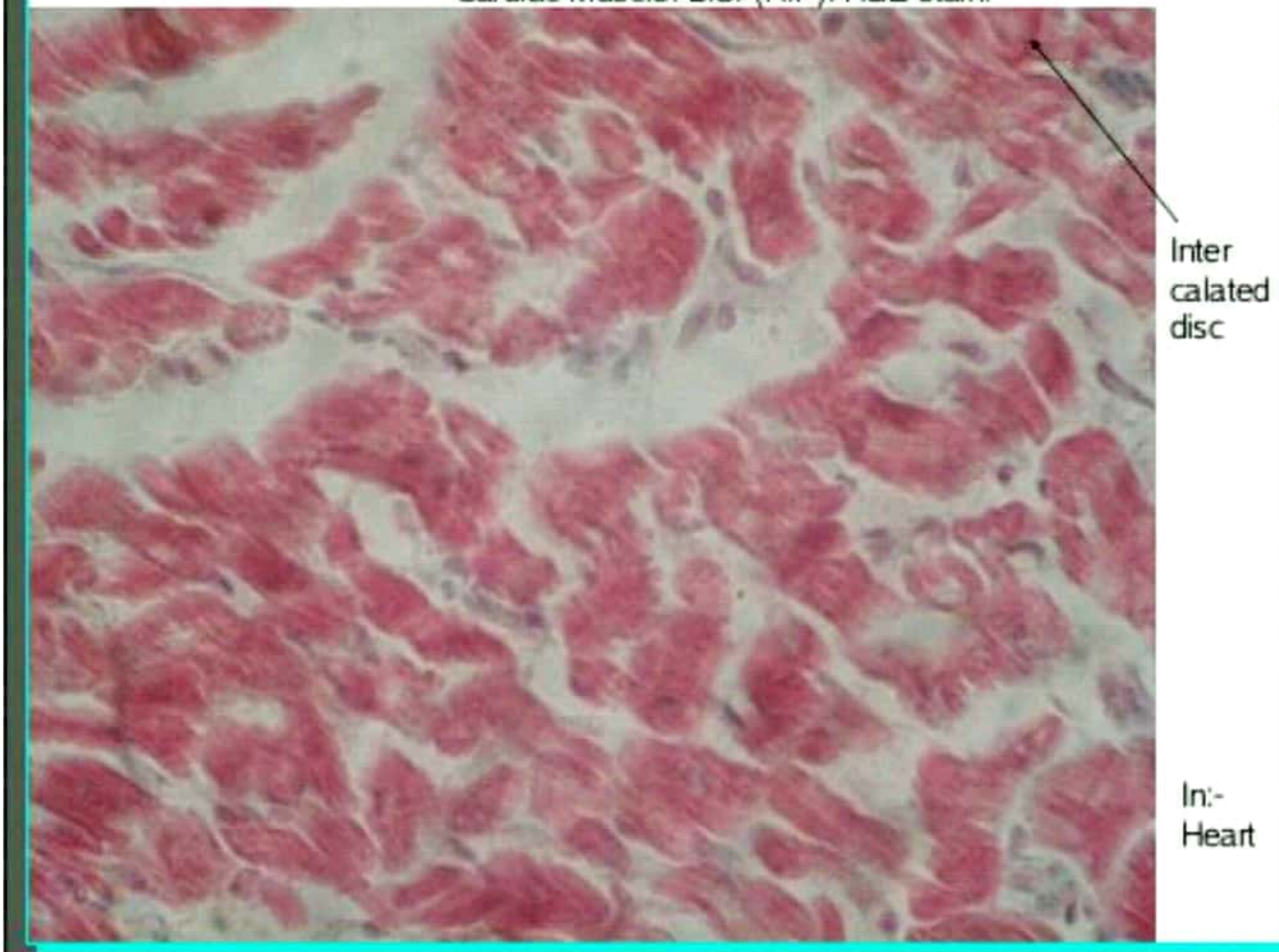

Epimysium
Bundle of muscle fiber
Endomysium
Perimysium

Cardiac muscle with H&E

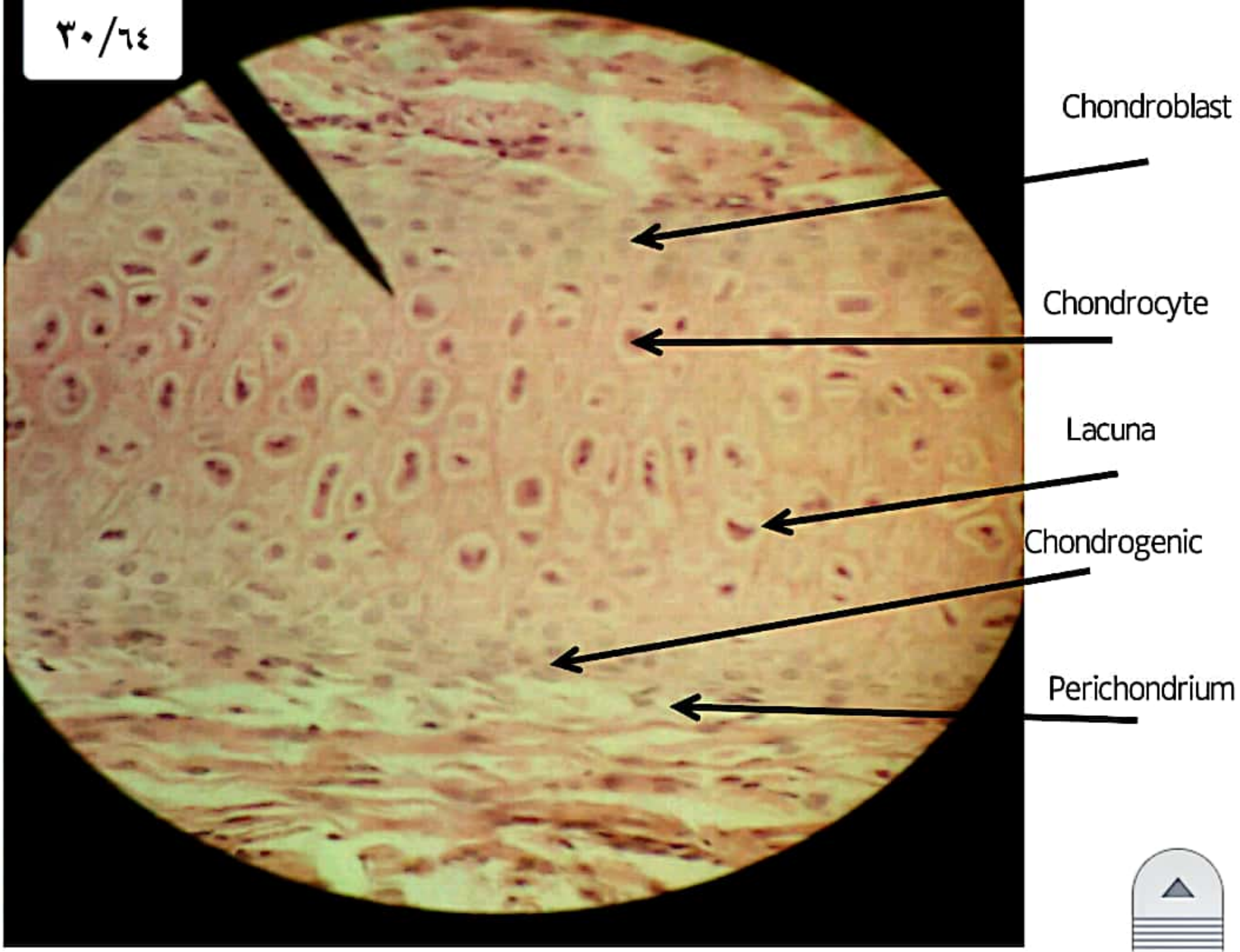

Nucleus
Branches

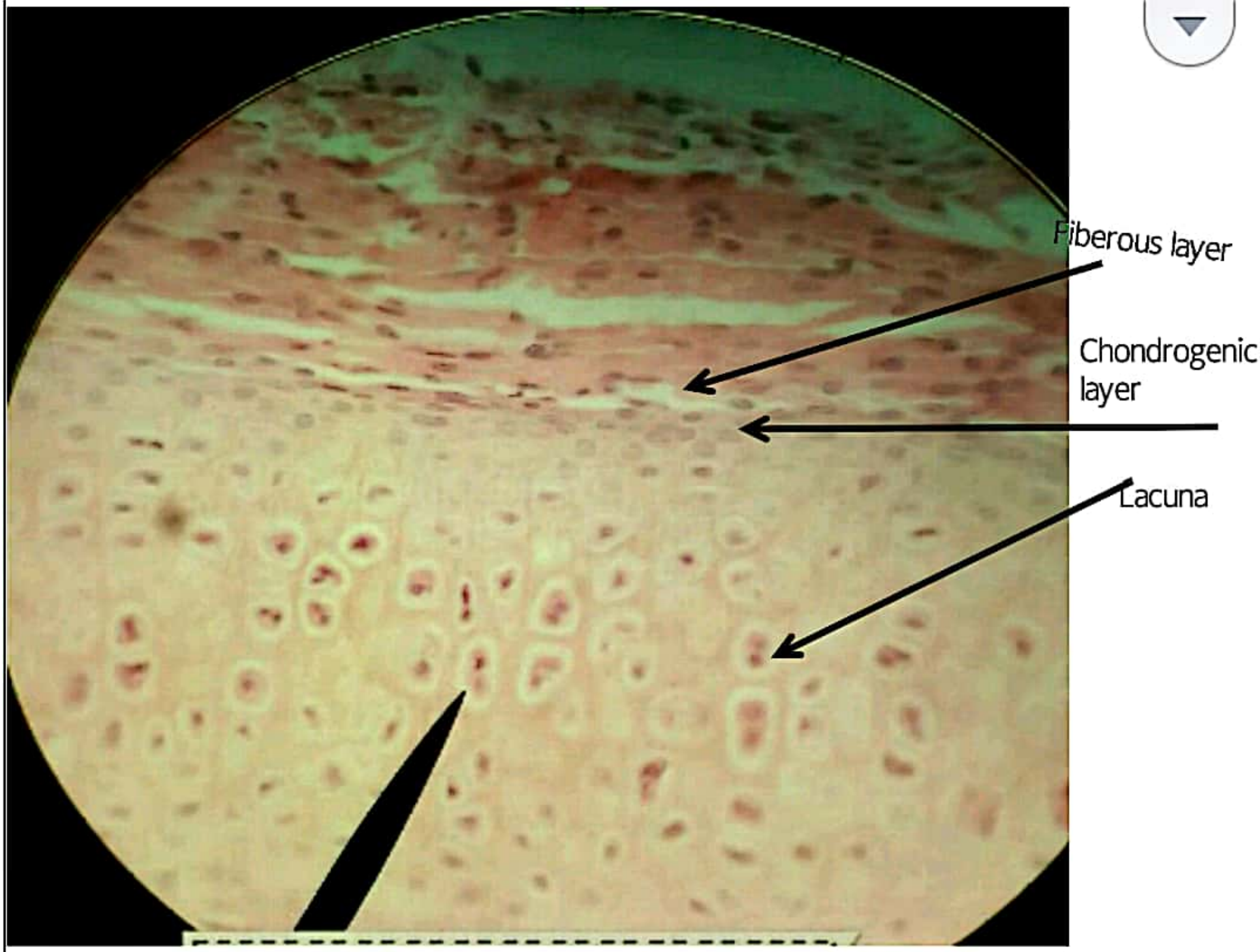
YM

Cardiac Muscle. L.S. (H.P). H&E stain.


Inter calated disc
In:- Heart

Cardiac Muscle. L.S. (H.P). H&E stain.


٣٠/٦٤
Chondroblast
Chondrocyte
Lacuna
Chondrogenic
Perichondrium


Fiberous layer
Chondrogenic layer
Lacuna

(Skeletal muscle)

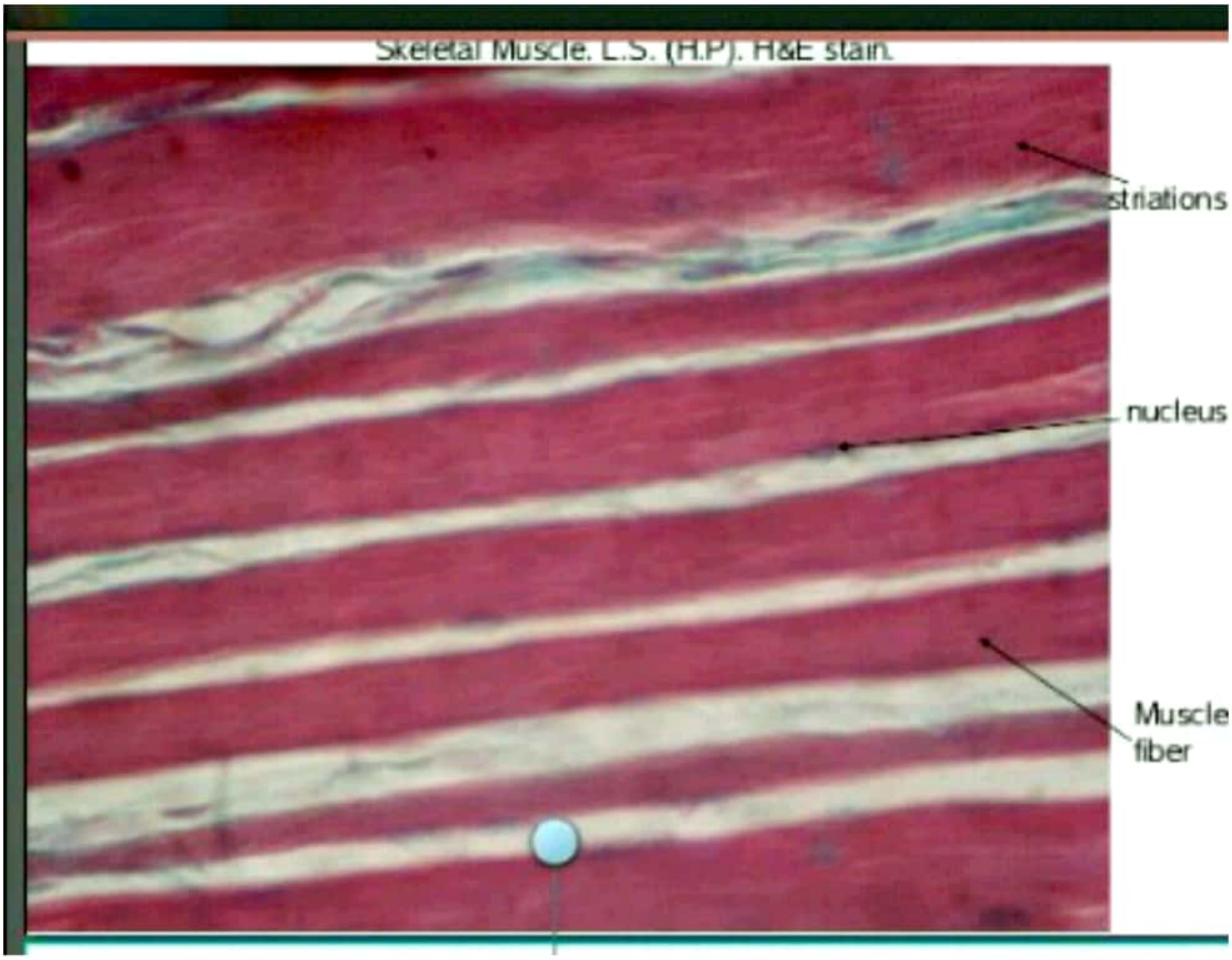
- voluntary & sriated.
- stain with special stain or H& E.

* In long section: -

- cylindrical in shape.
- multy ,oval, prephral nucli

* In transferes section: -

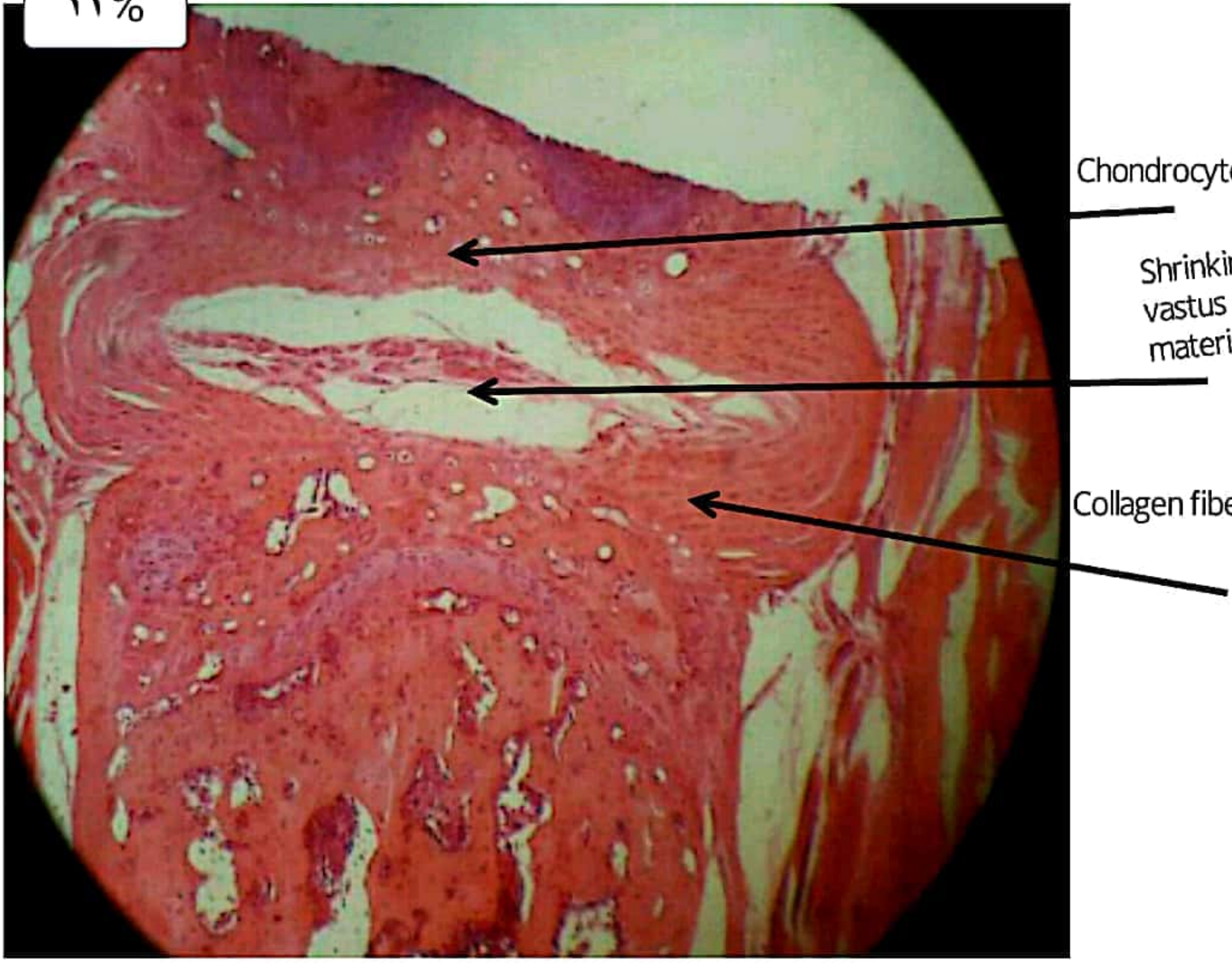
- we can see (endomysium , perimysium & epimysium)
- muscles fibers & bundles.
- oval prephral nucli.



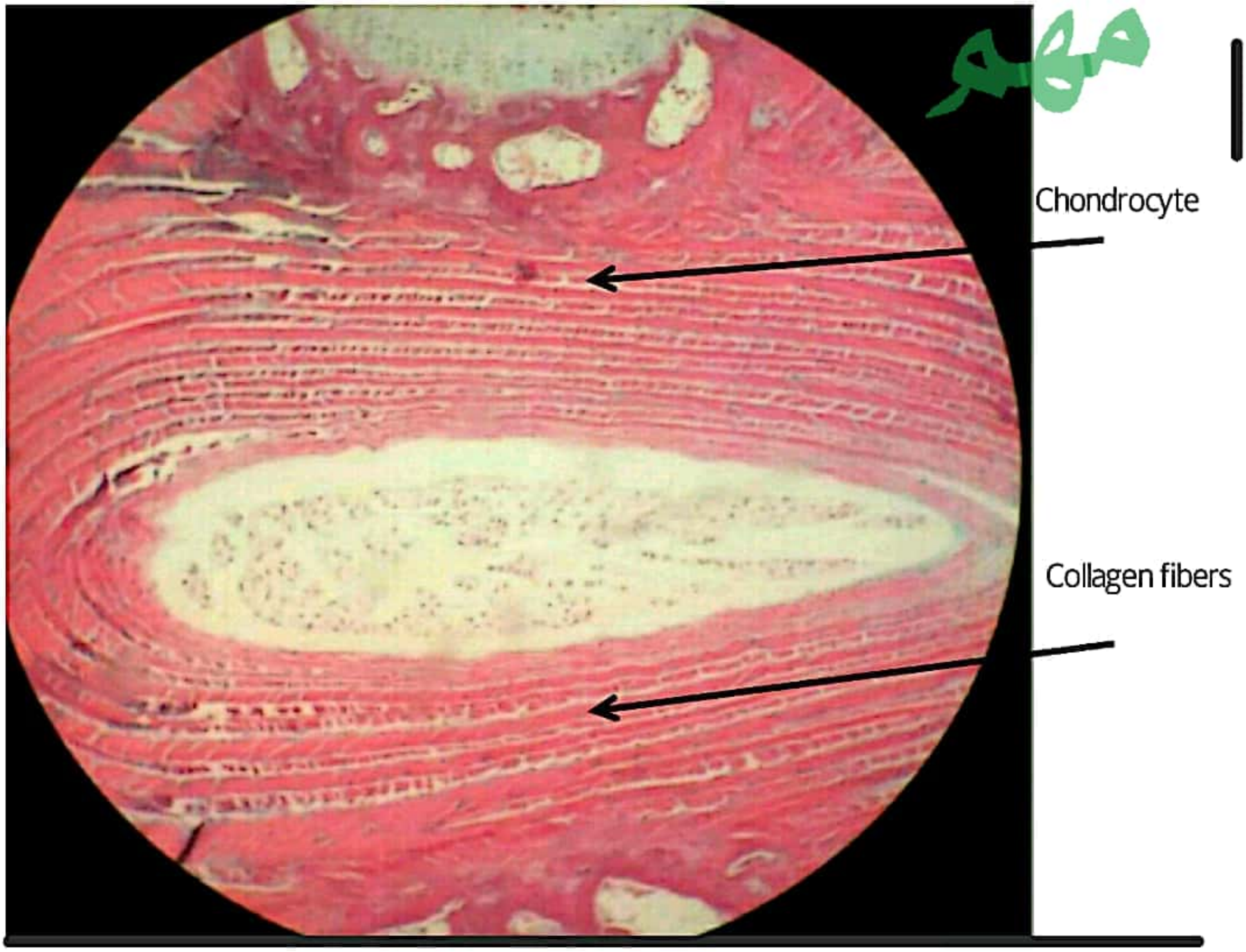
Skeletal Muscle. L.S. (H.P). H&E stain.

striations
nucleus
Muscle fiber

٢٣%

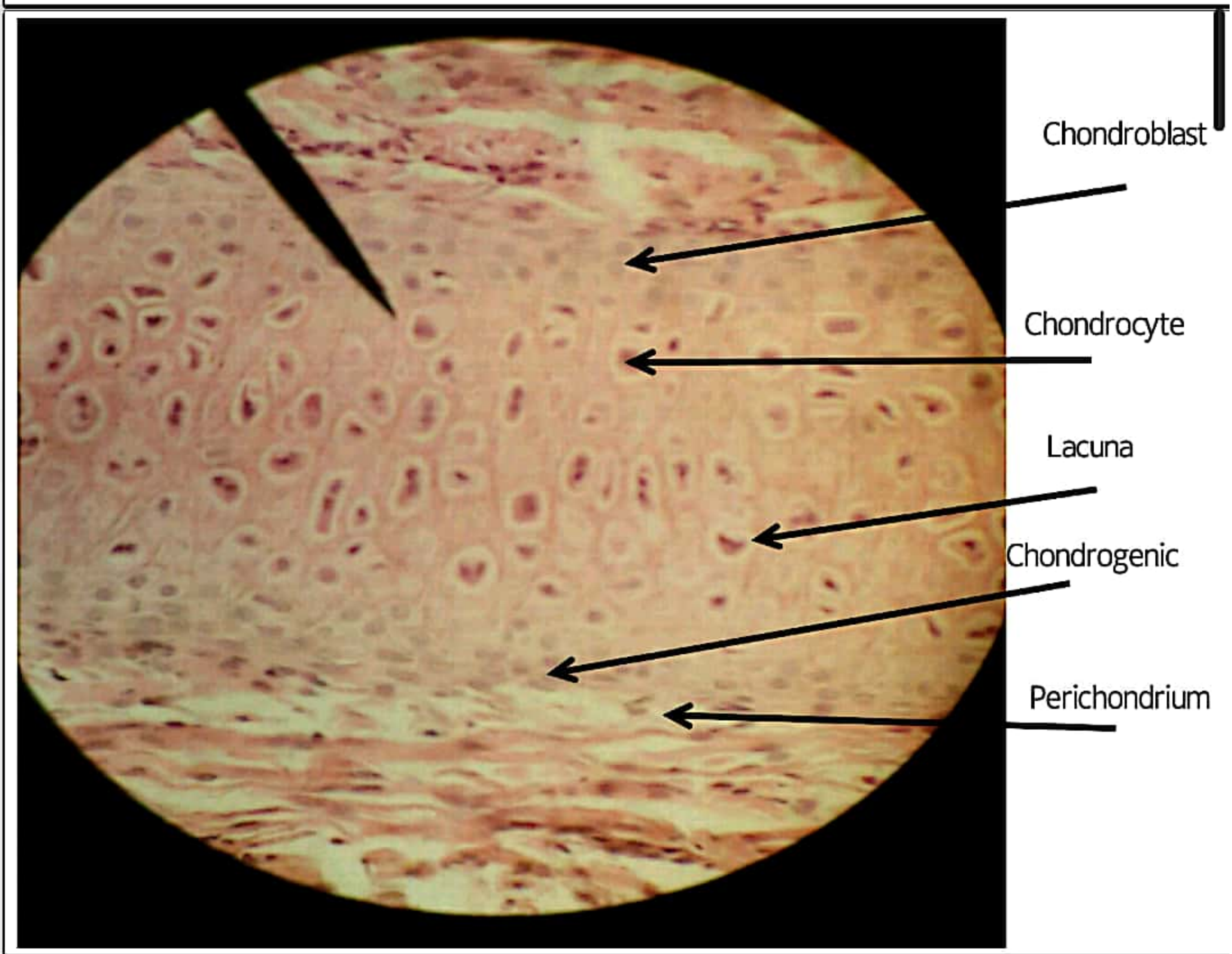

Chondrocyte
Shrinking vastus material
Collagen fibers

مهم


Chondrocyte
Collagen fibers

Elastic Cartilage

In the ear.
- stain with standard elastic stains. And has yellow color.
In the slide we can see the same thing like hayline cartilage except the fibers : -
* pericondrium: -
- outer fibrous layer. - inner condrogenic layer
- In the prephral there are chondrogenic & chondroblast .
But in the center this is chondrocyte & cell nest.
And the other thing is the matrix contain abundant network of elastic fibers.

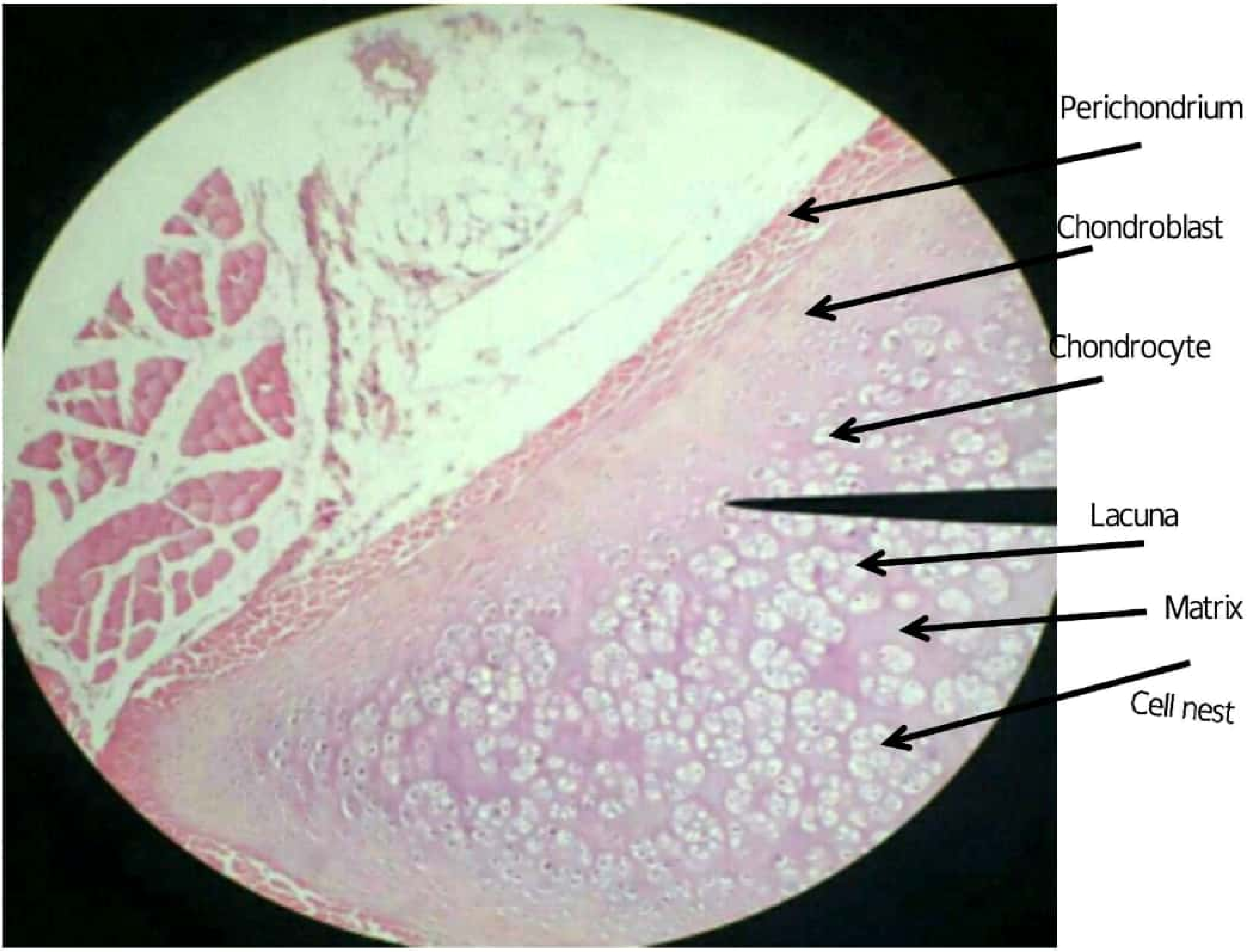

Chondroblast
Chondrocyte
Lacuna
Chondrogenic
Perichondrium

Hayline cartilage

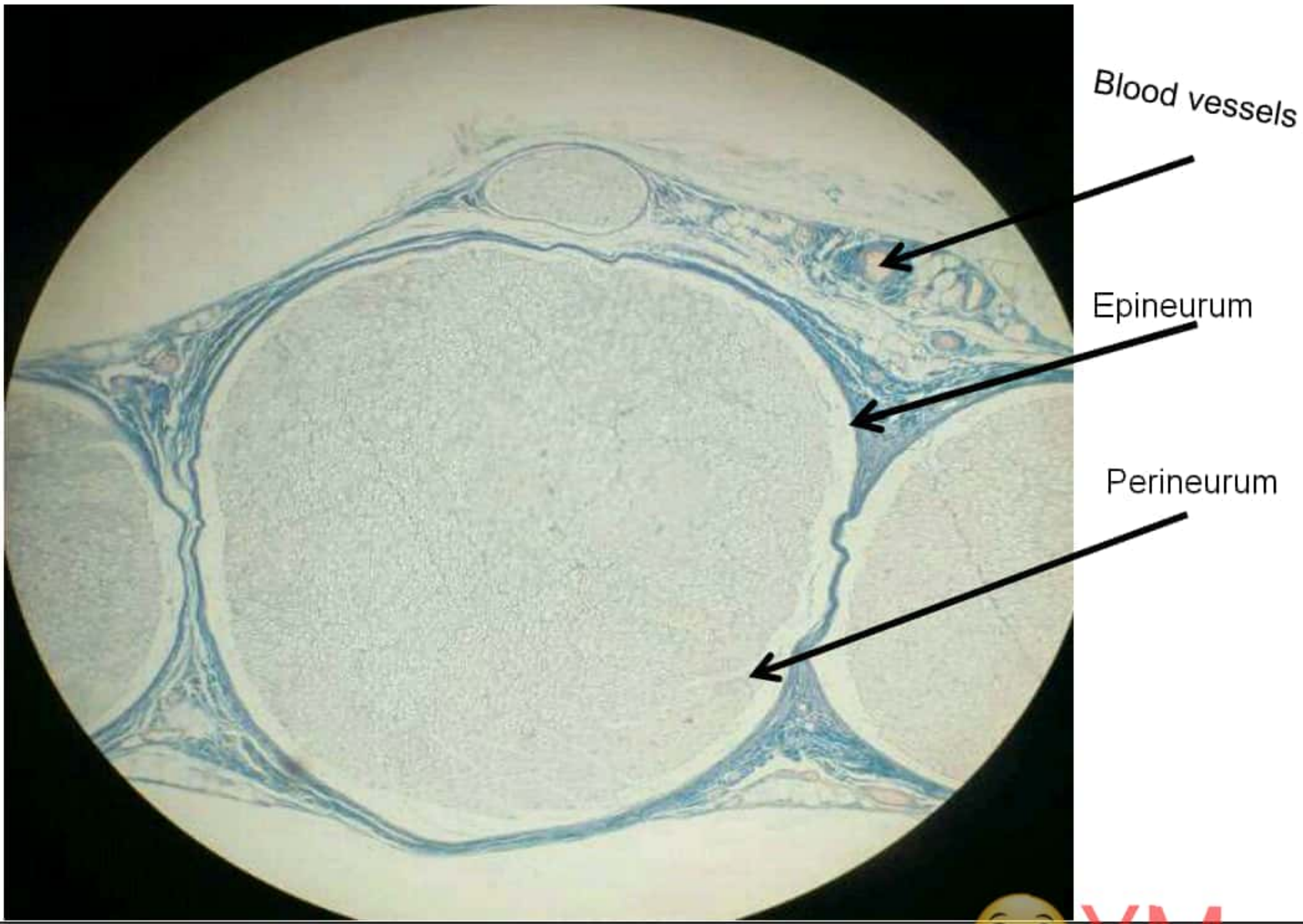
In trachea
- stain with H& E.

In the slide we can see: -
* pericondrium: -
- outer fibrous layer. - inner conrogenic layer

- In the prephral there are chondrogenic & chondroblast .
But in the center this is chondrocyte & cell nest.
And the other thing is the matrix contain collagen fibers2.

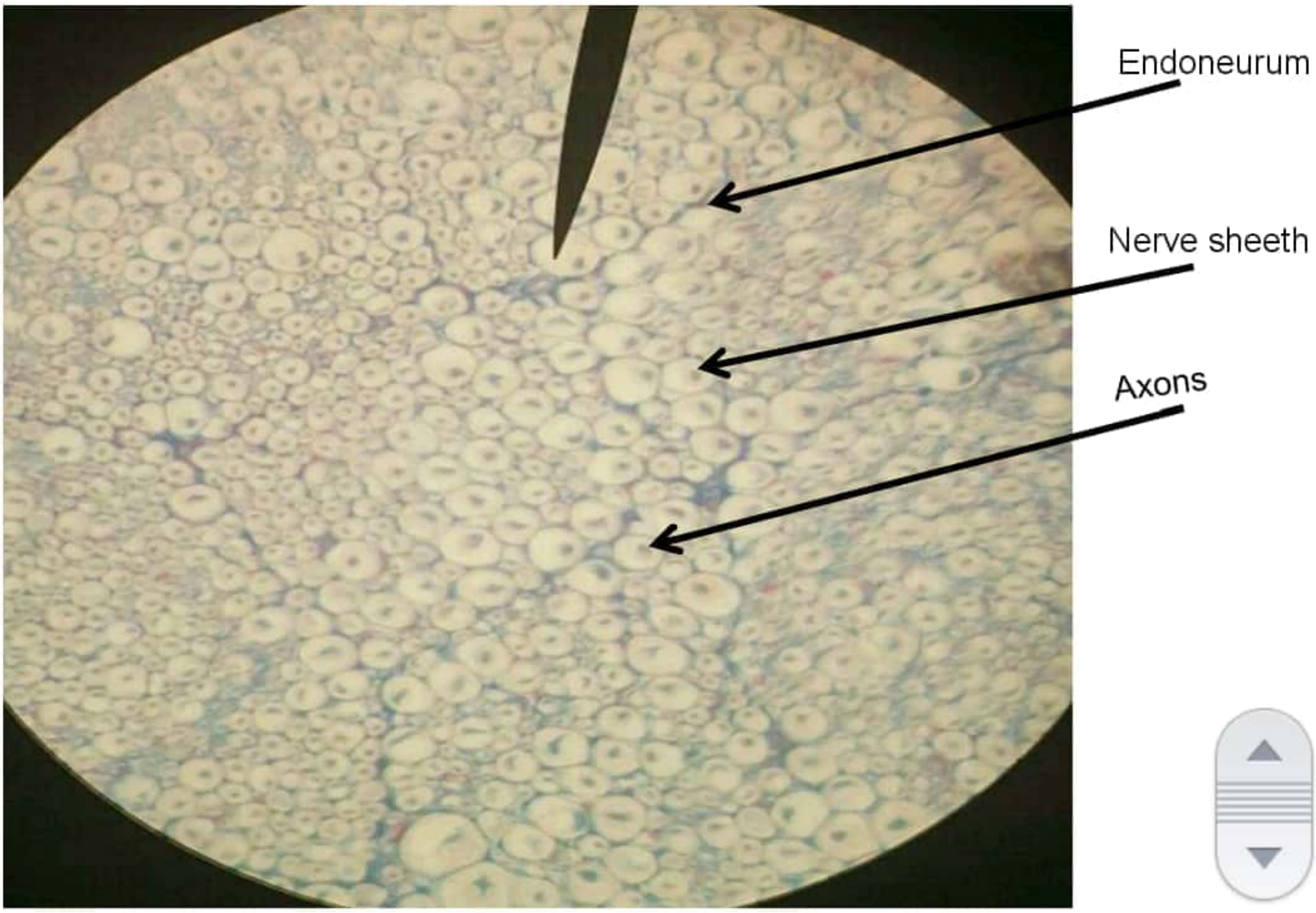

Perichondrium
Chondroblast
Chondrocyte
Lacuna
Matrix
Cell nest

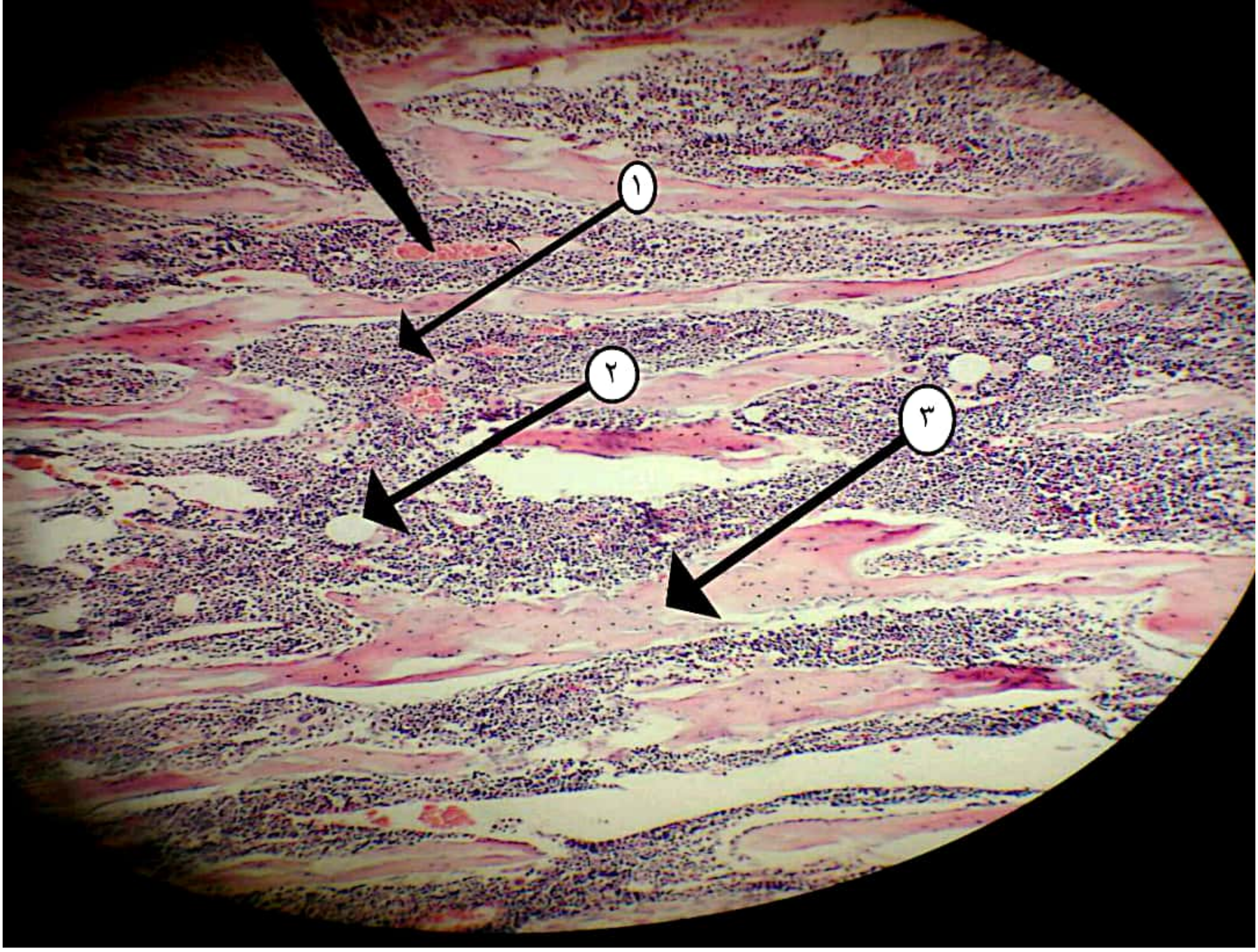
Sciatic nerve by special stain


Blood vessels
Epineurum
Perineurum

YM

Sciatic nerve by special stain


Endoneurum
Nerve sheeth
Axons



[*spongy bone*]-

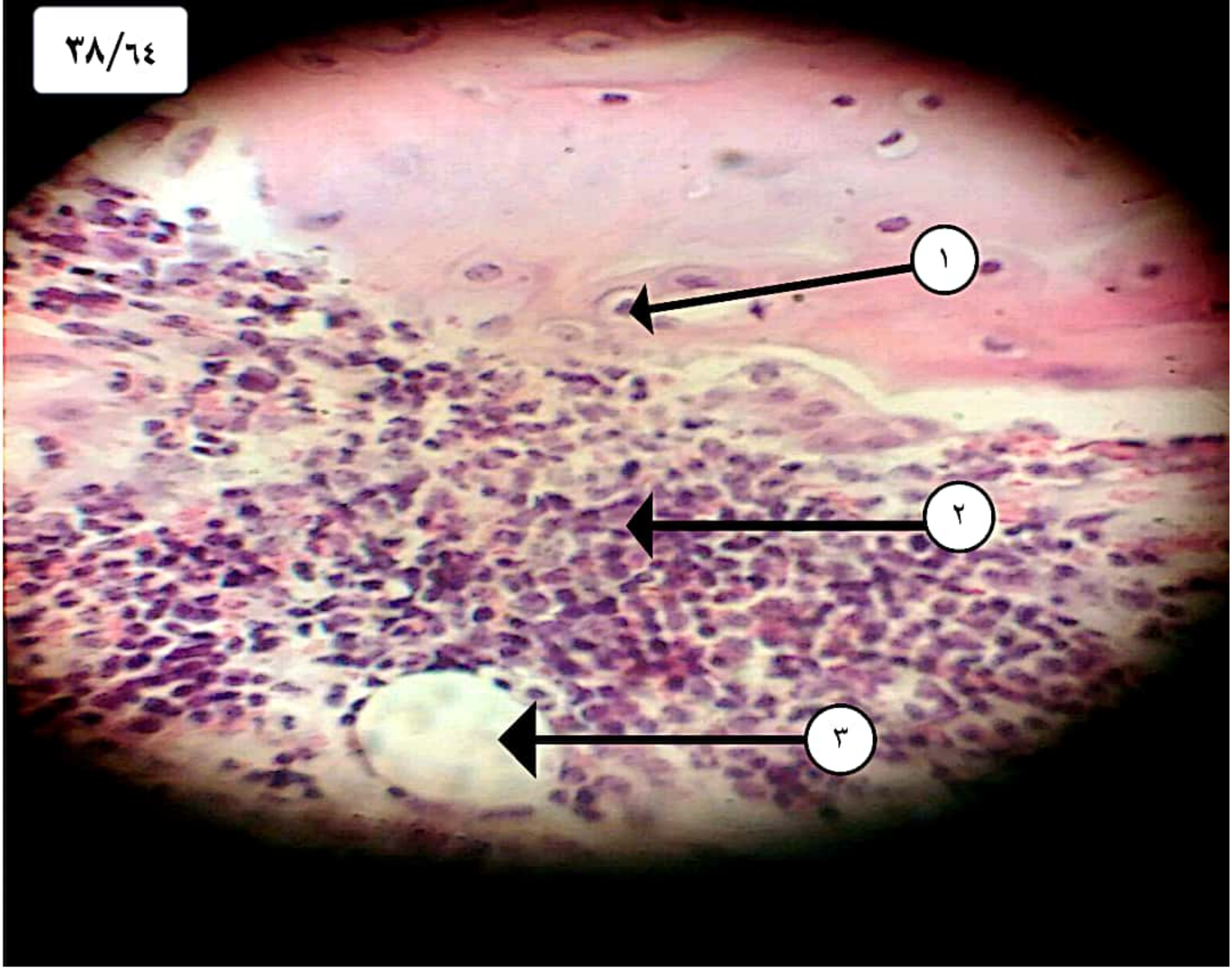
- in L.M
- stain with H & E →red →Eosin

- low lense (10 X).

1- Red bone marrow (Hematobolitic tissue).

2- Adipocyte. (Esqape from compact bone).

3- Trabiculae



[Spongy bone]-
(cancellous)

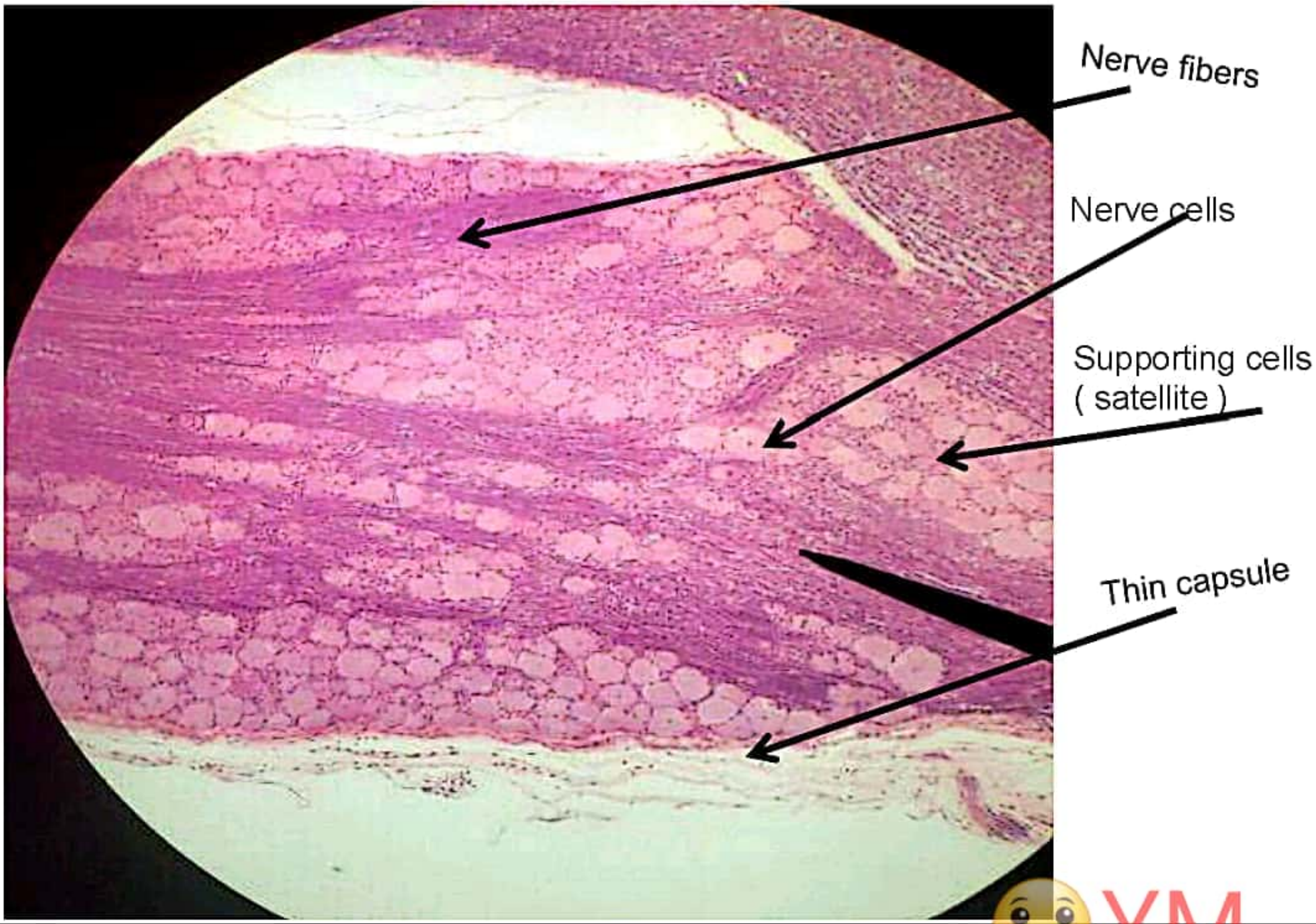
-Medium lense (45 X) .
- stain
with H&E.

1- Osteocyte in lacunae.

2- Red bone marrow.

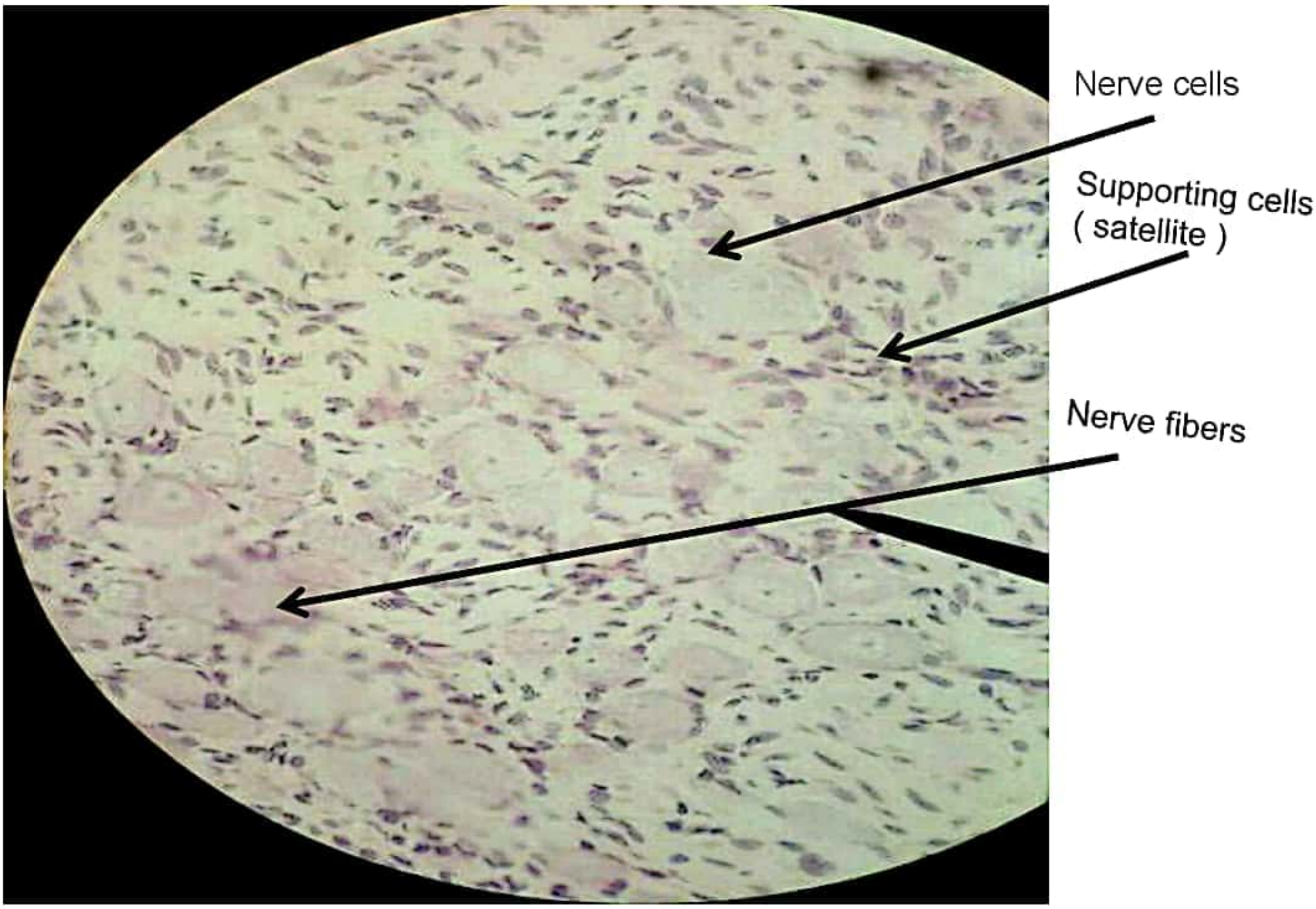
3- adipocyte →which escape from compact bone.

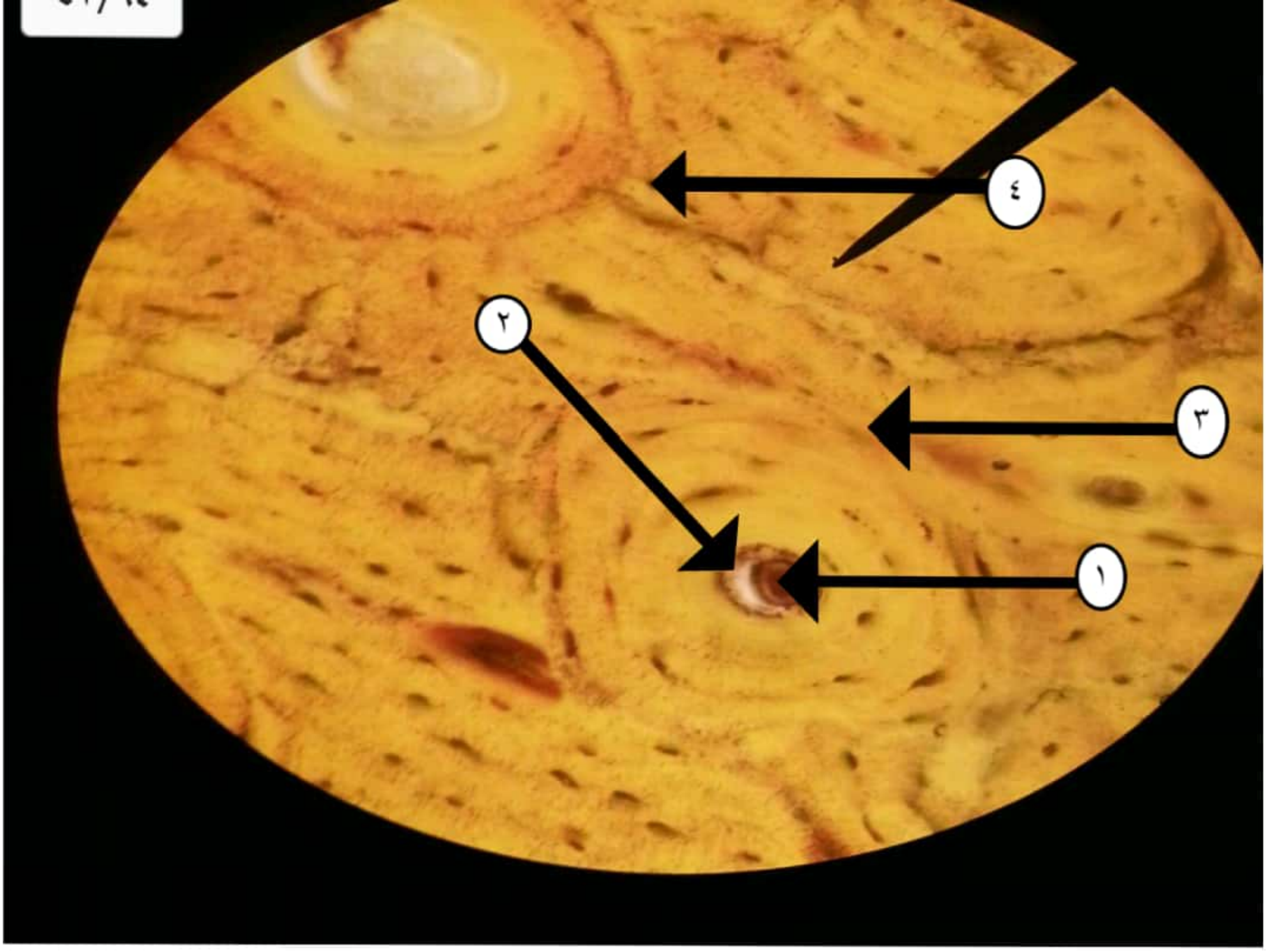
Spinal ganglia


Nerve fibers
Nerve cells
Supporting cells (satellite)
Thin capsule

YM

Sympathetic ganglia


Nerve cells
Supporting cells (satellite)
Nerve fibers



[Compact bone]-

- Stain with H& E .
-MEDIUM lense (45X).

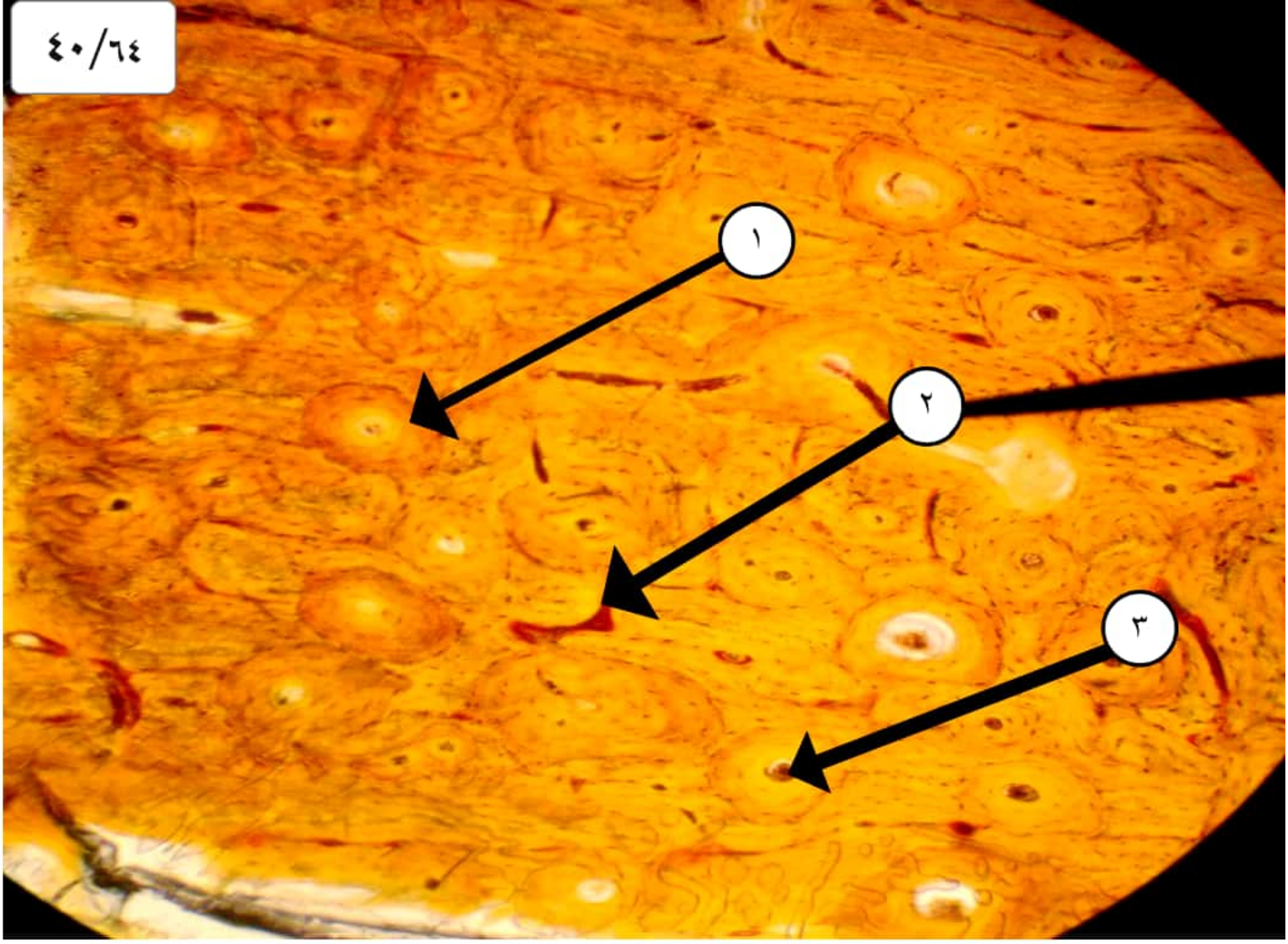
1- Haversian canal.

2- Concentric bone lamellae.

3-Interstitial lamellae.

4- Osteocyte.

→osteoblast & osteoclast. un stained.



[Compact bone]-

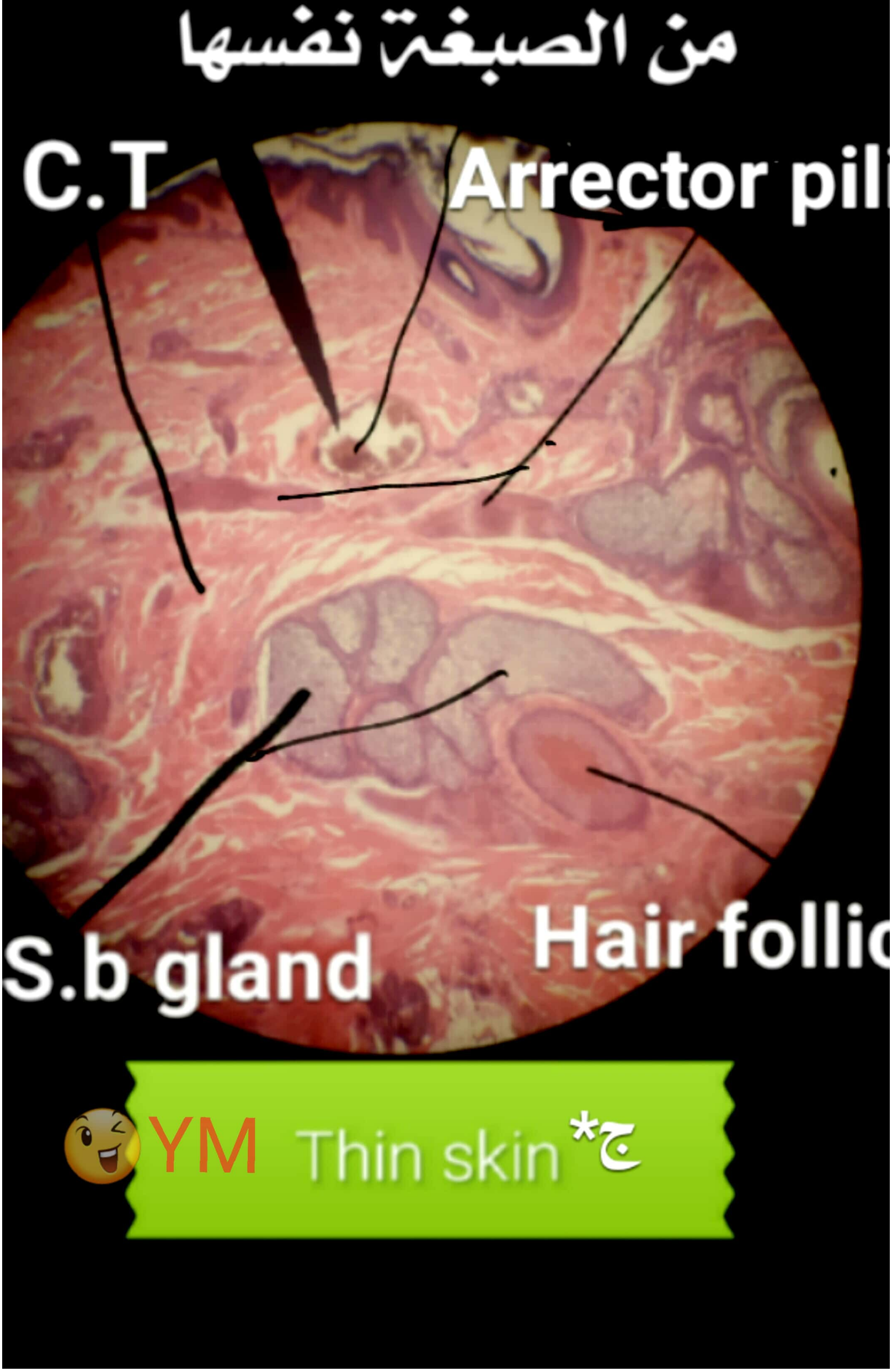
-In L.M.
- Stain with (H & E)
- Low lense (10 X).

1- Haversian system.

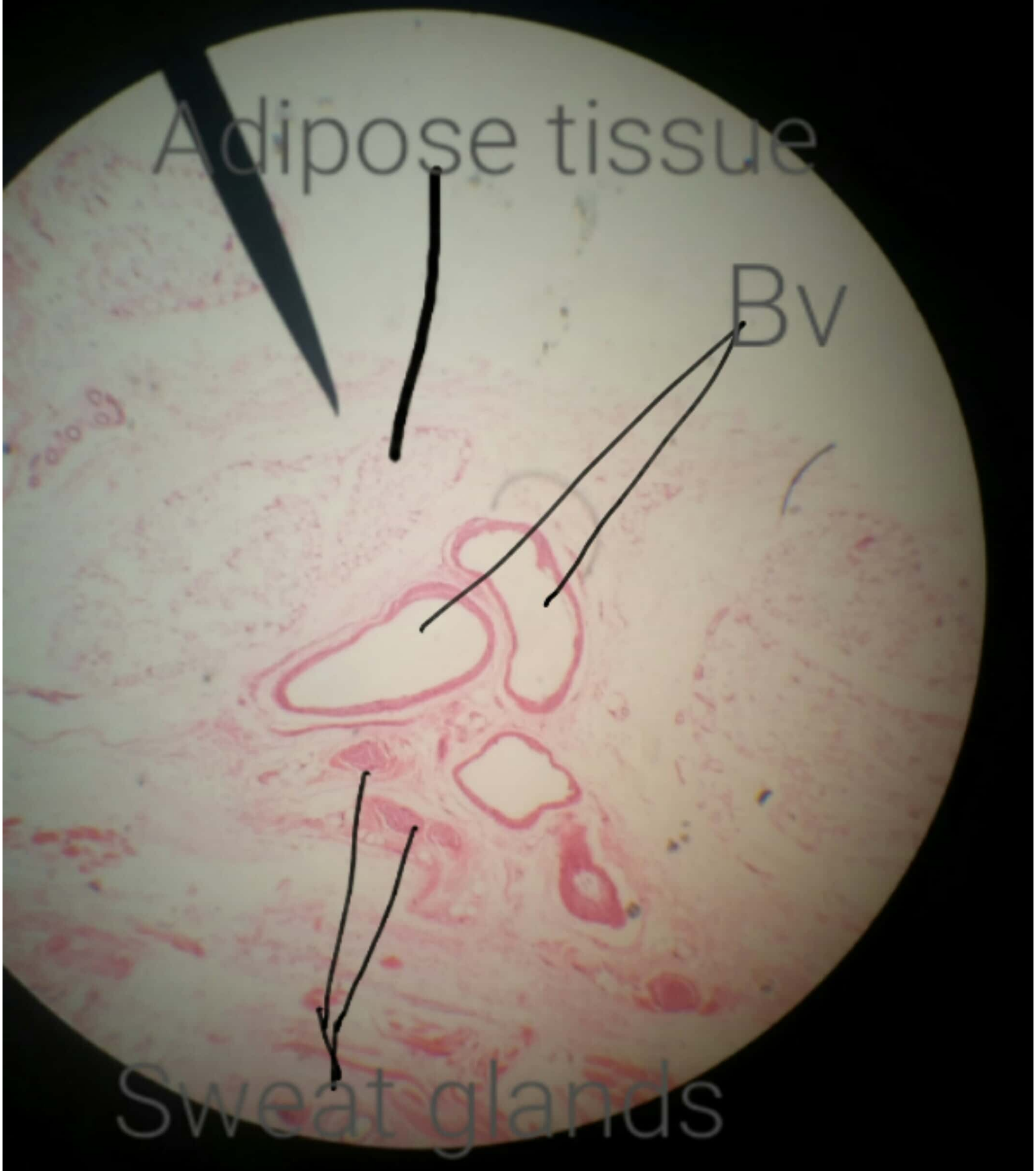
2- Volcmann's canals.

3- Haversian canal.

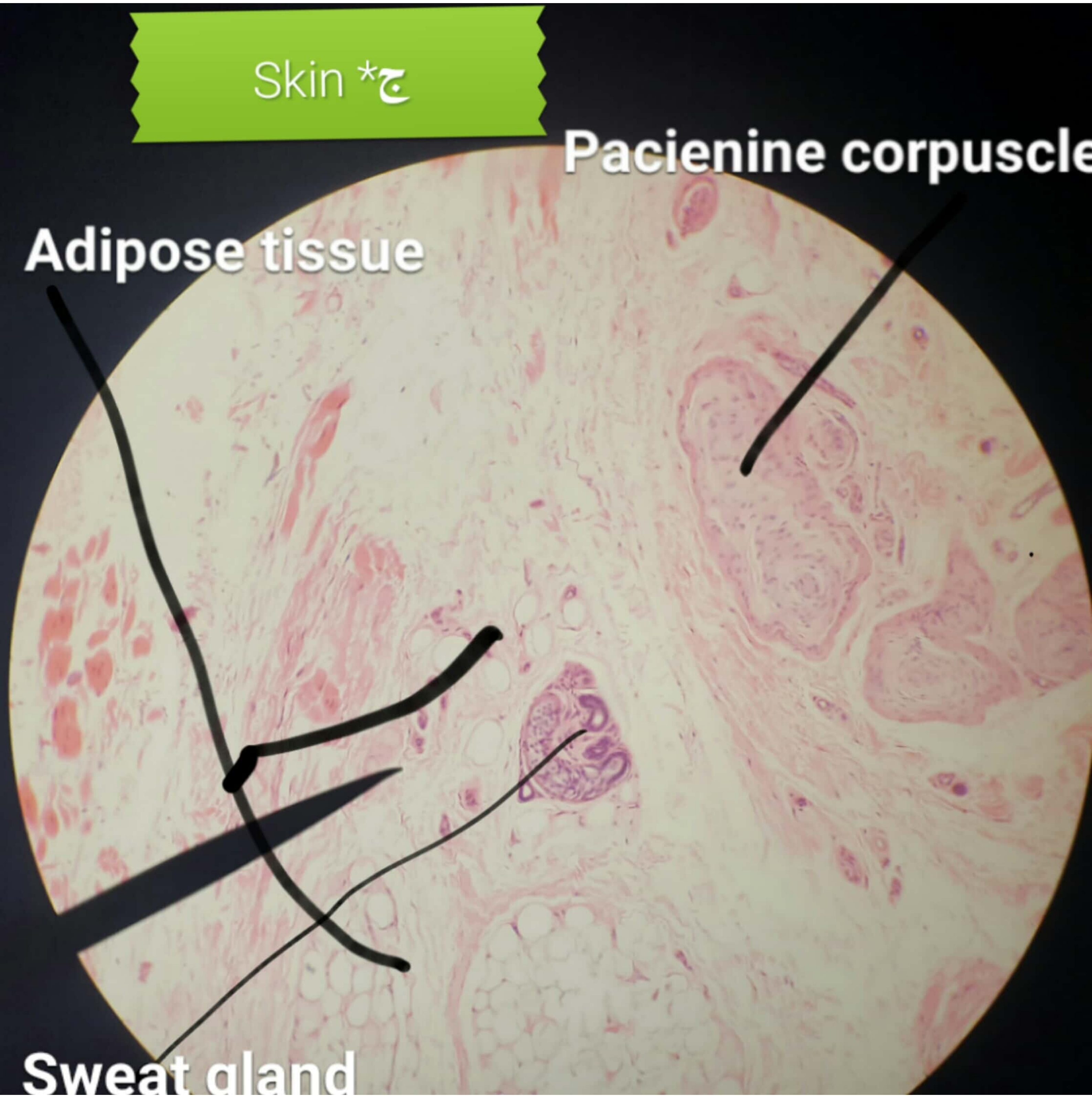
من الصبغة نفسها

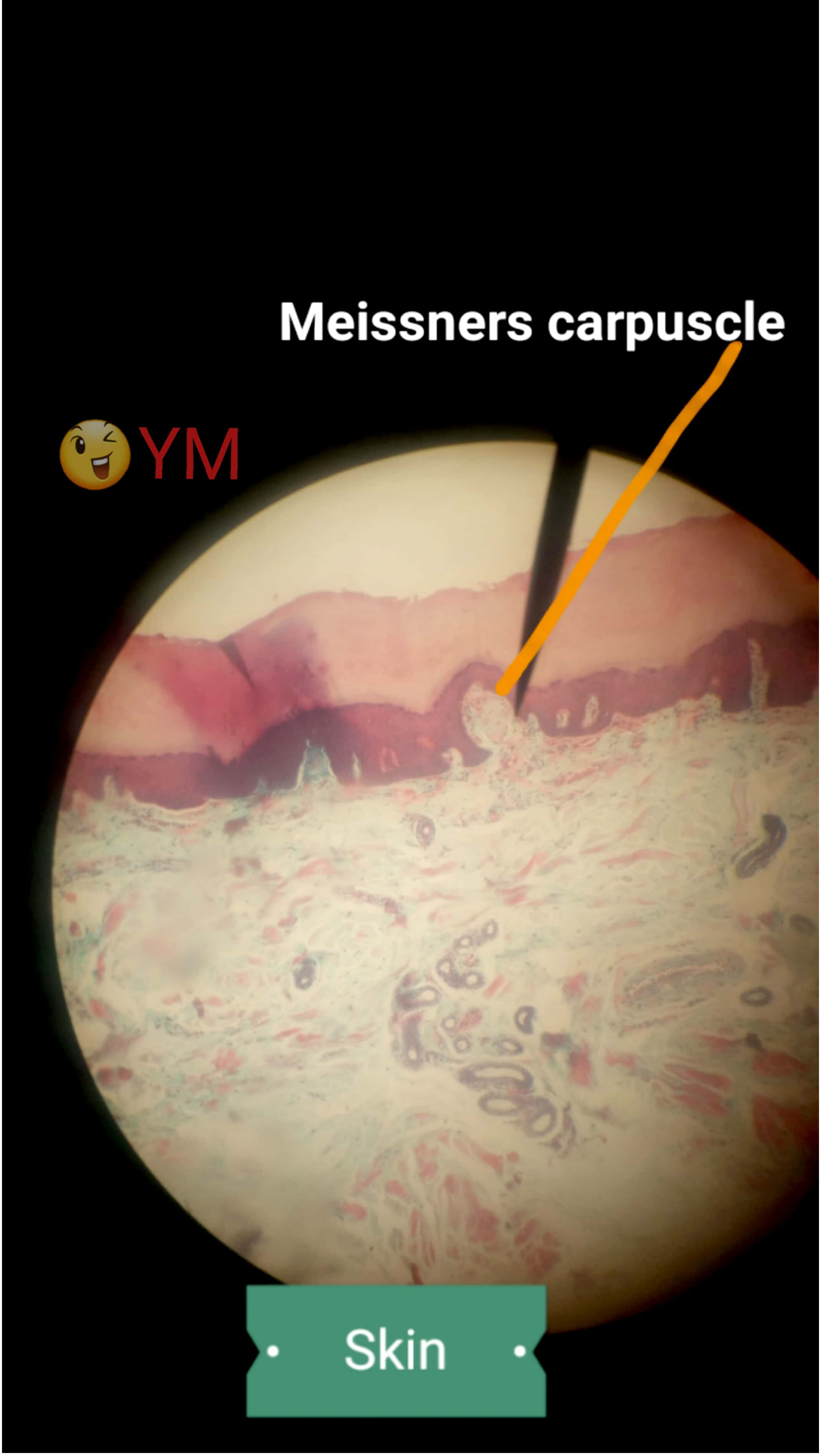

C.T
Arrector pili
S.b gland
Hair follic
YM

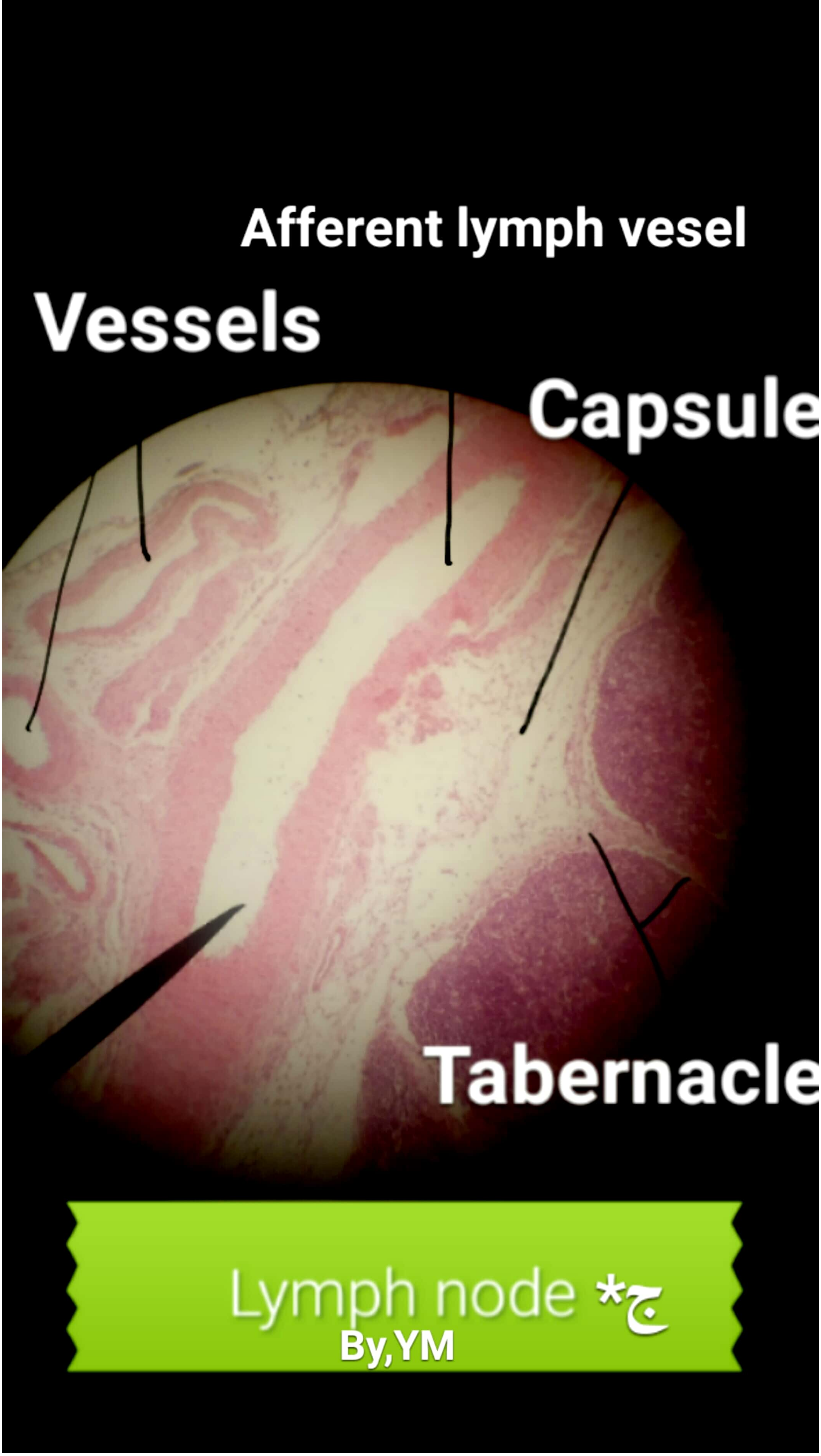
Thin skin ج*

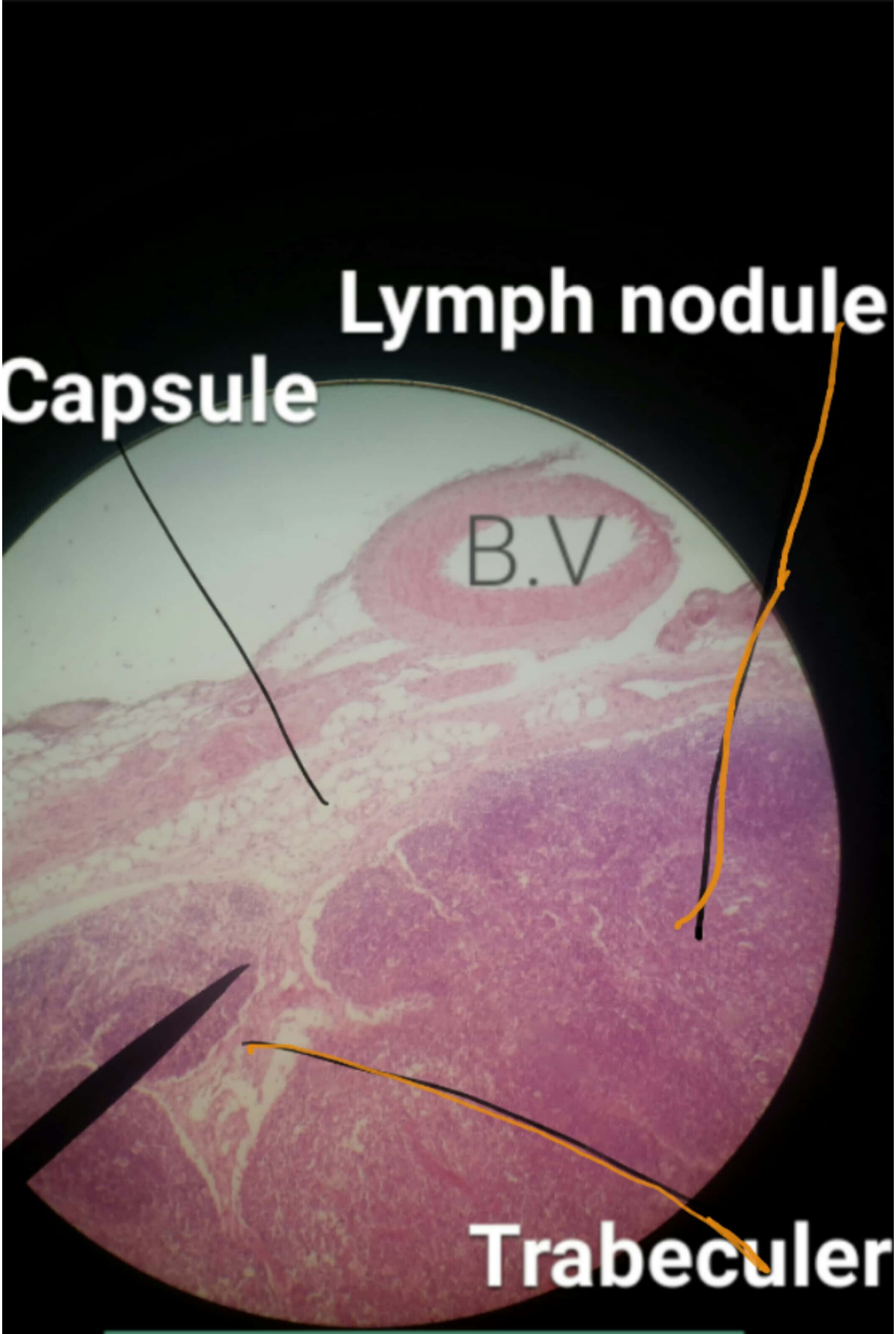

Adipose tissue
Bv
Sweat glands

Thick skin ج*

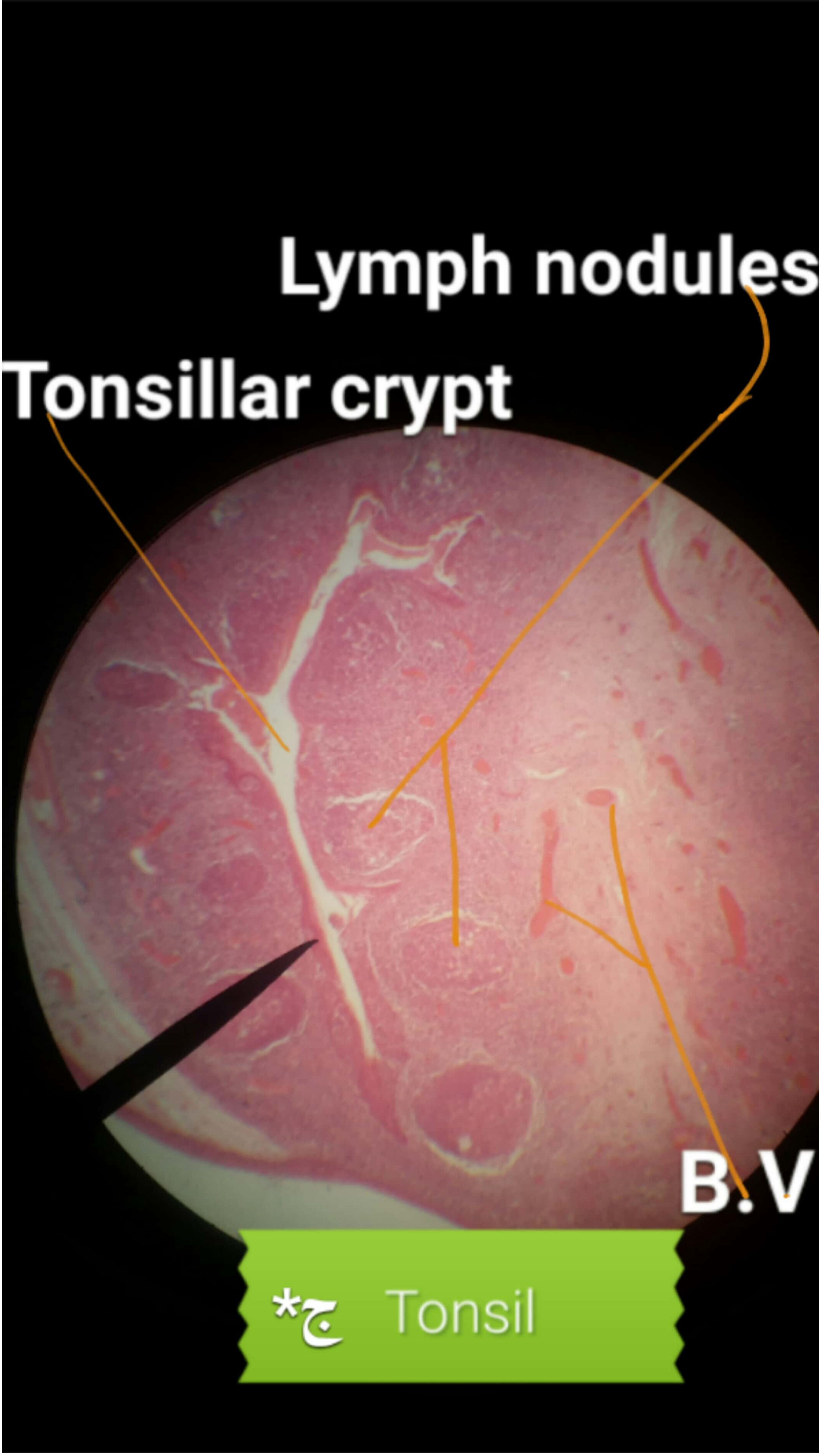

Skin *ج
Pacienine corpuscle
Adipose tissue
Sweat gland

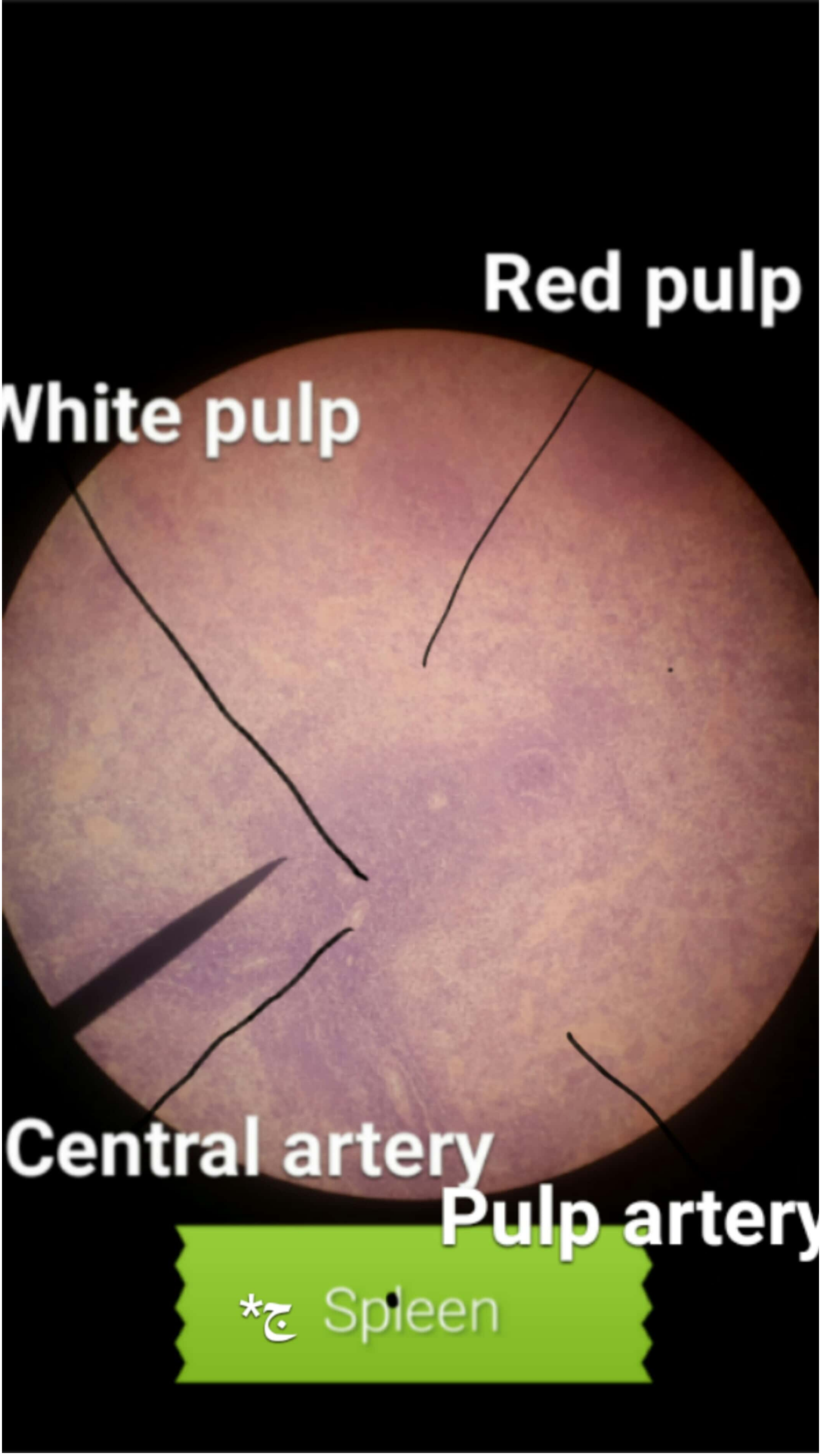

Meissners carpuscle
YM
Skin

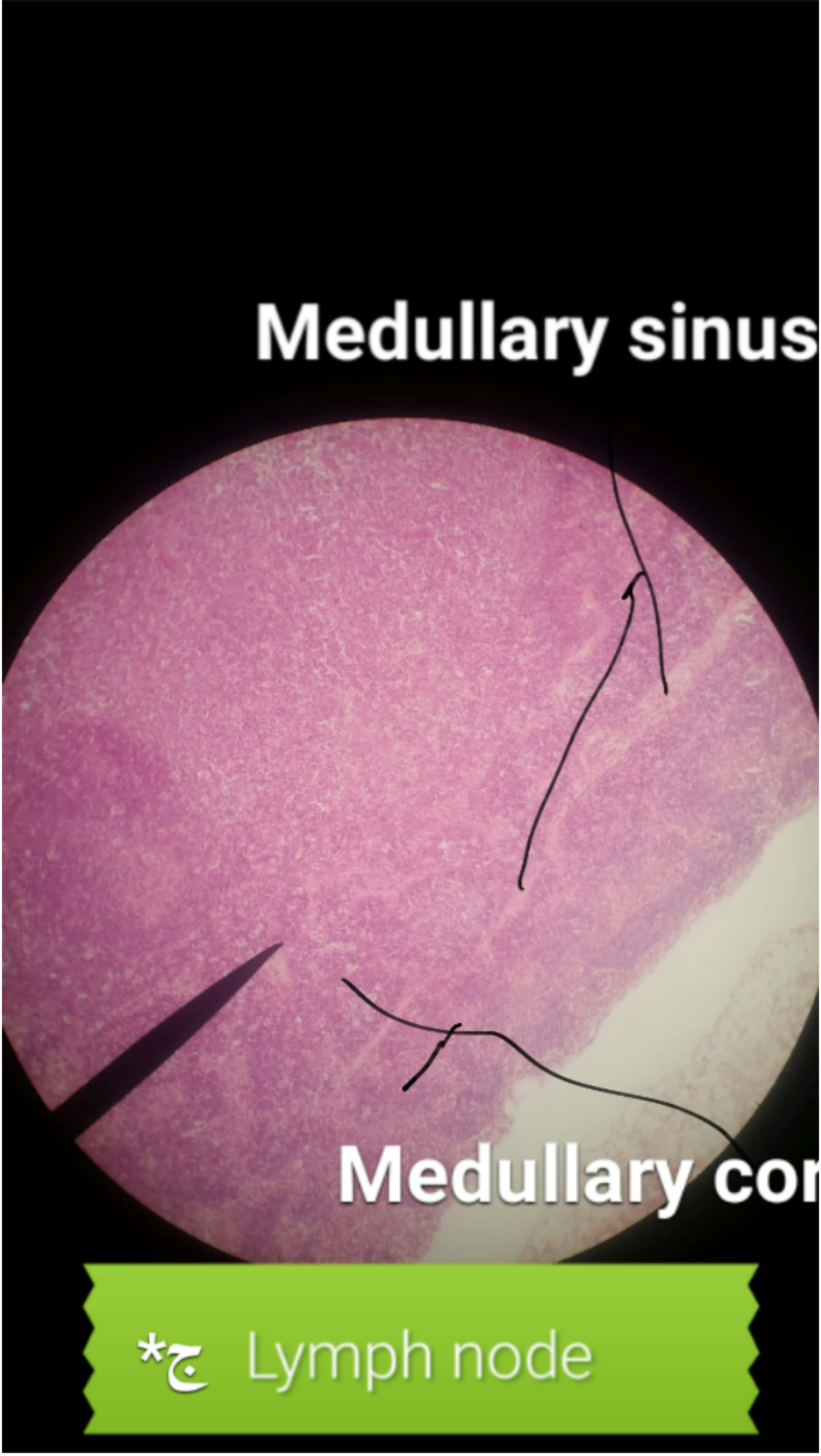

Afferent lymph vesel
Vessels
Capsule
Tabernacle
Lymph node *ج
By,YM

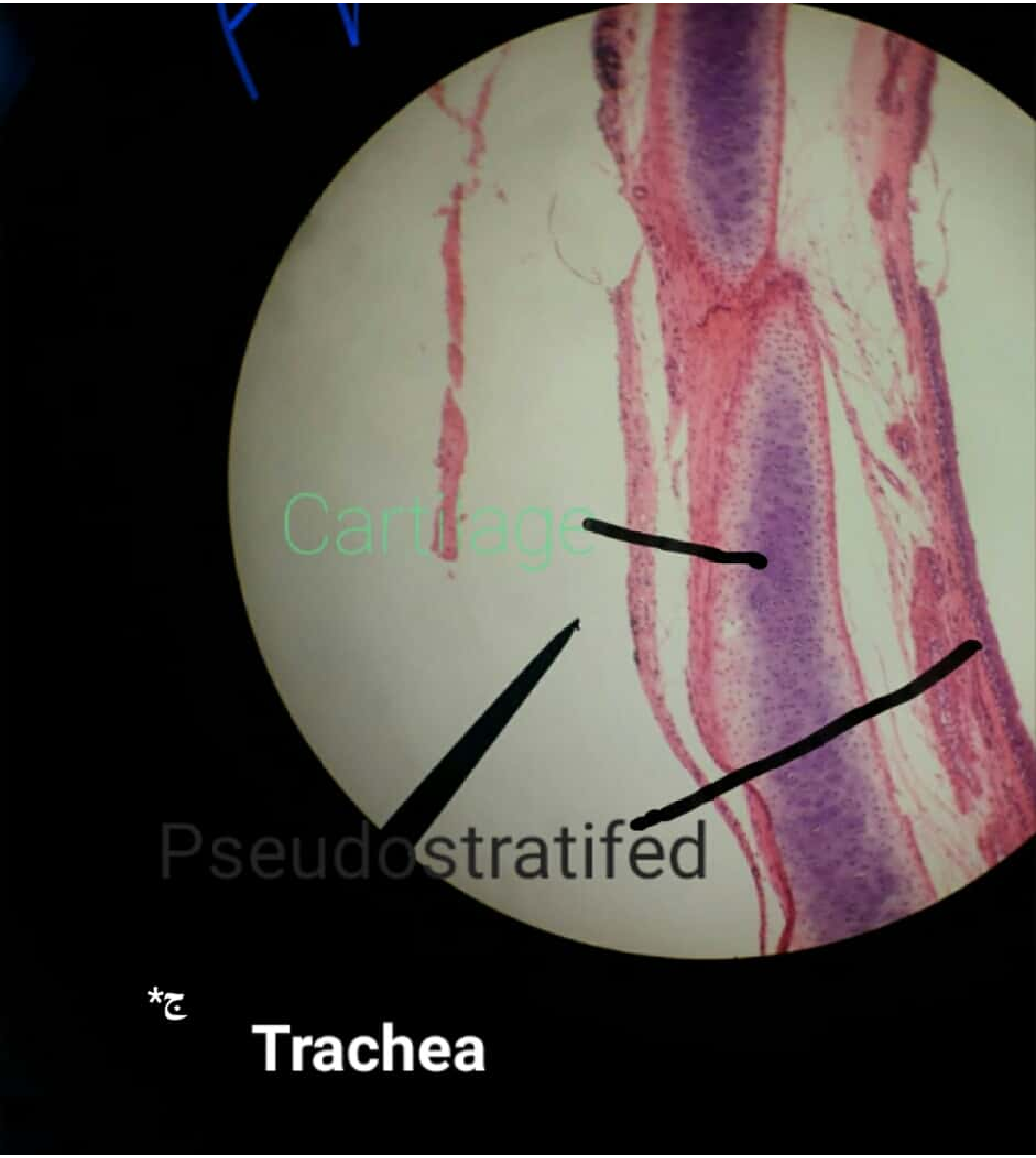

Lymph nodule
Capsule
B.V
Trabeculer

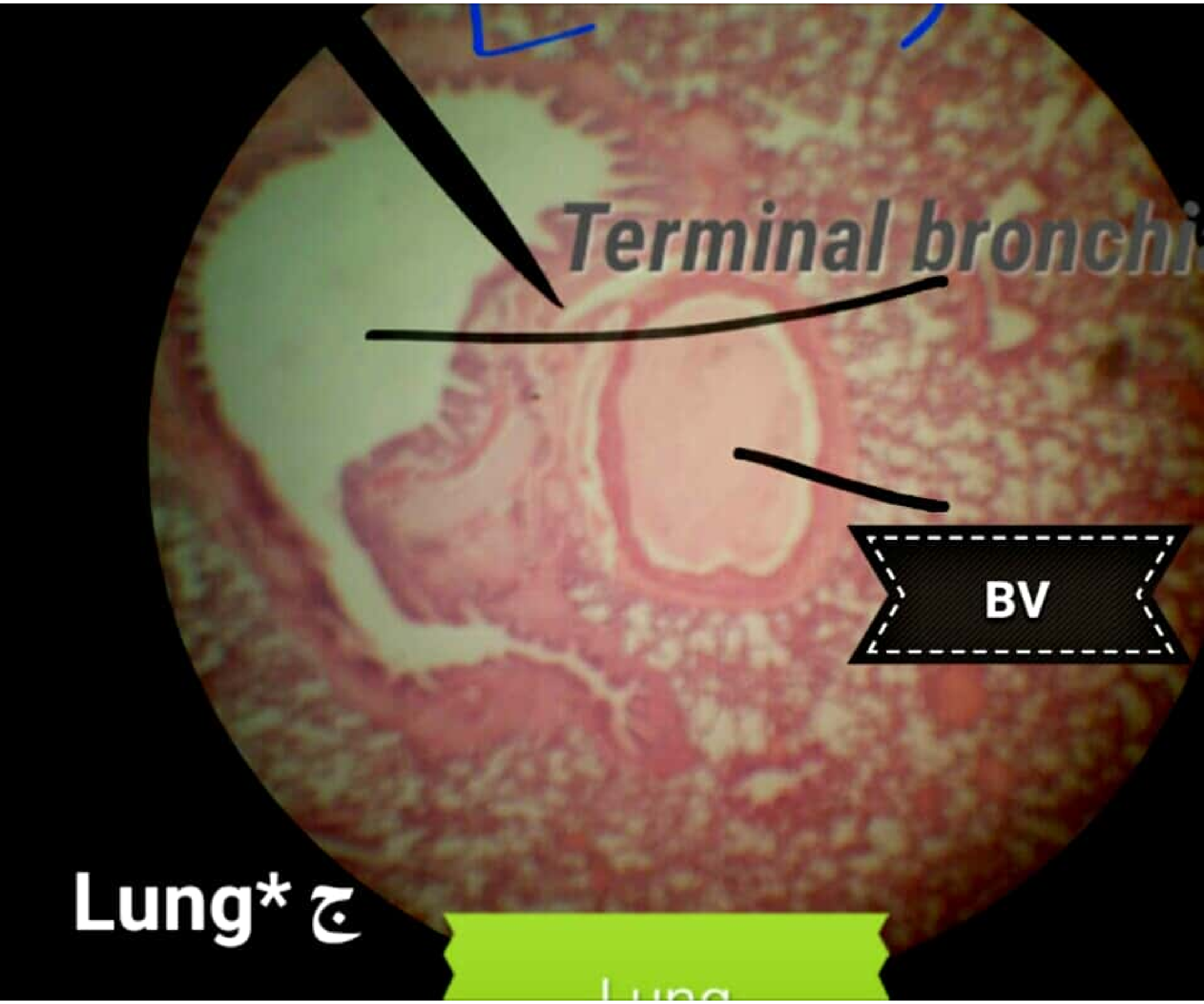
ج* Lymph node

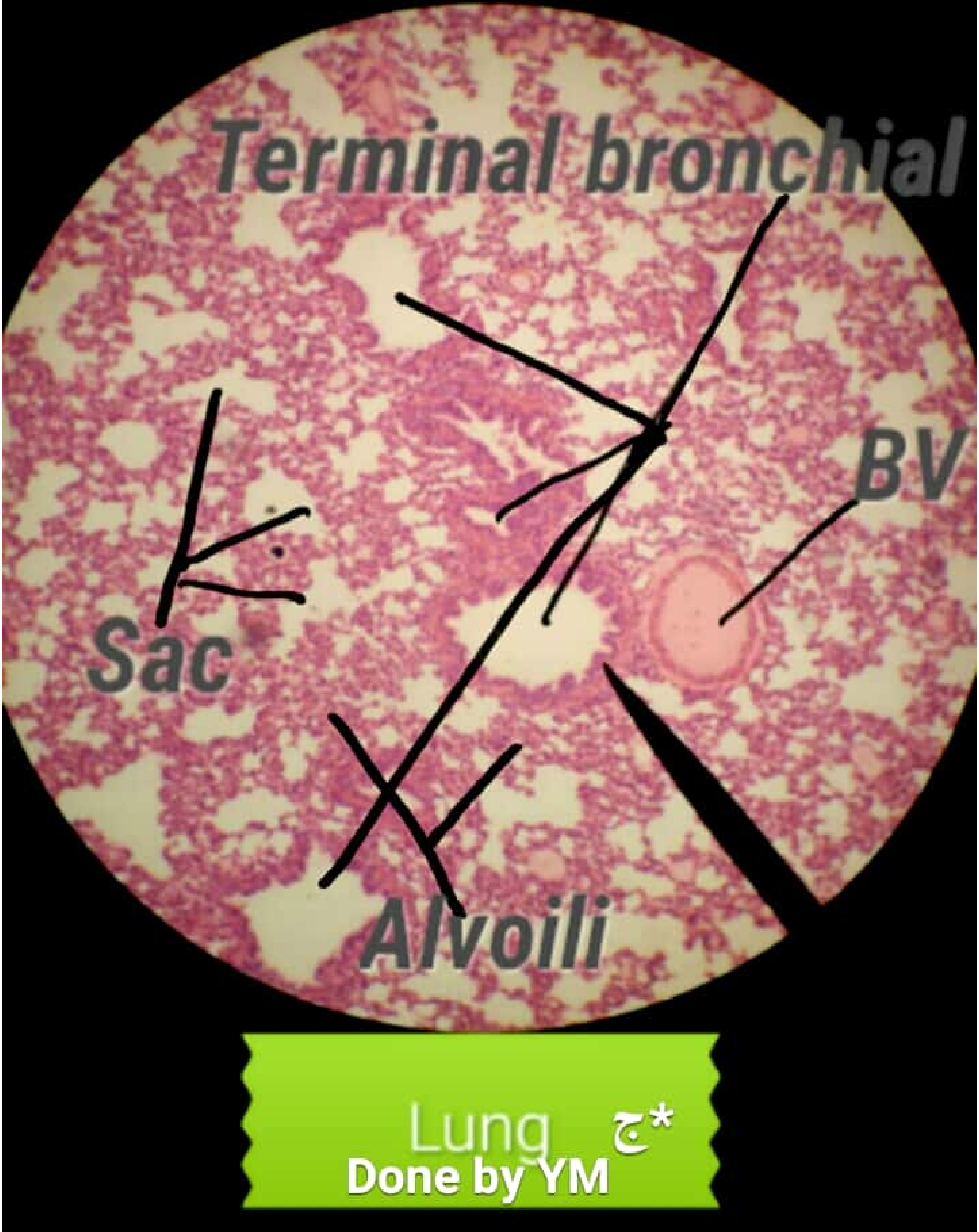

Lymph nodules
Tonsillar crypt
B.V
ج* Tonsil


Red pulp
White pulp
Central artery
Pulp artery
ج* Spleen

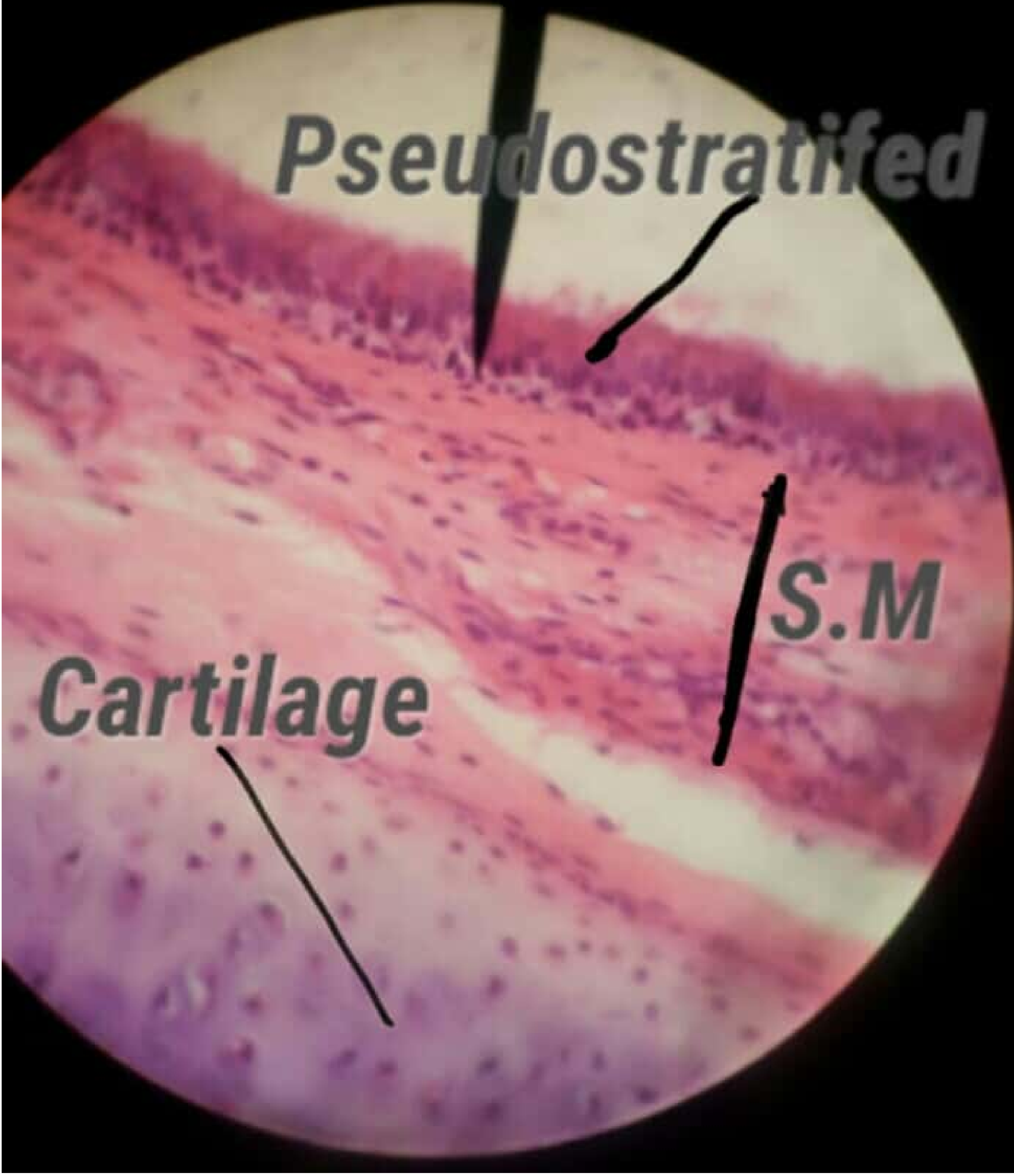

Medullary sinus
Medullary cor
*ج Lymph node


Cartilage
Pseudostratifed
ج*
Trachea

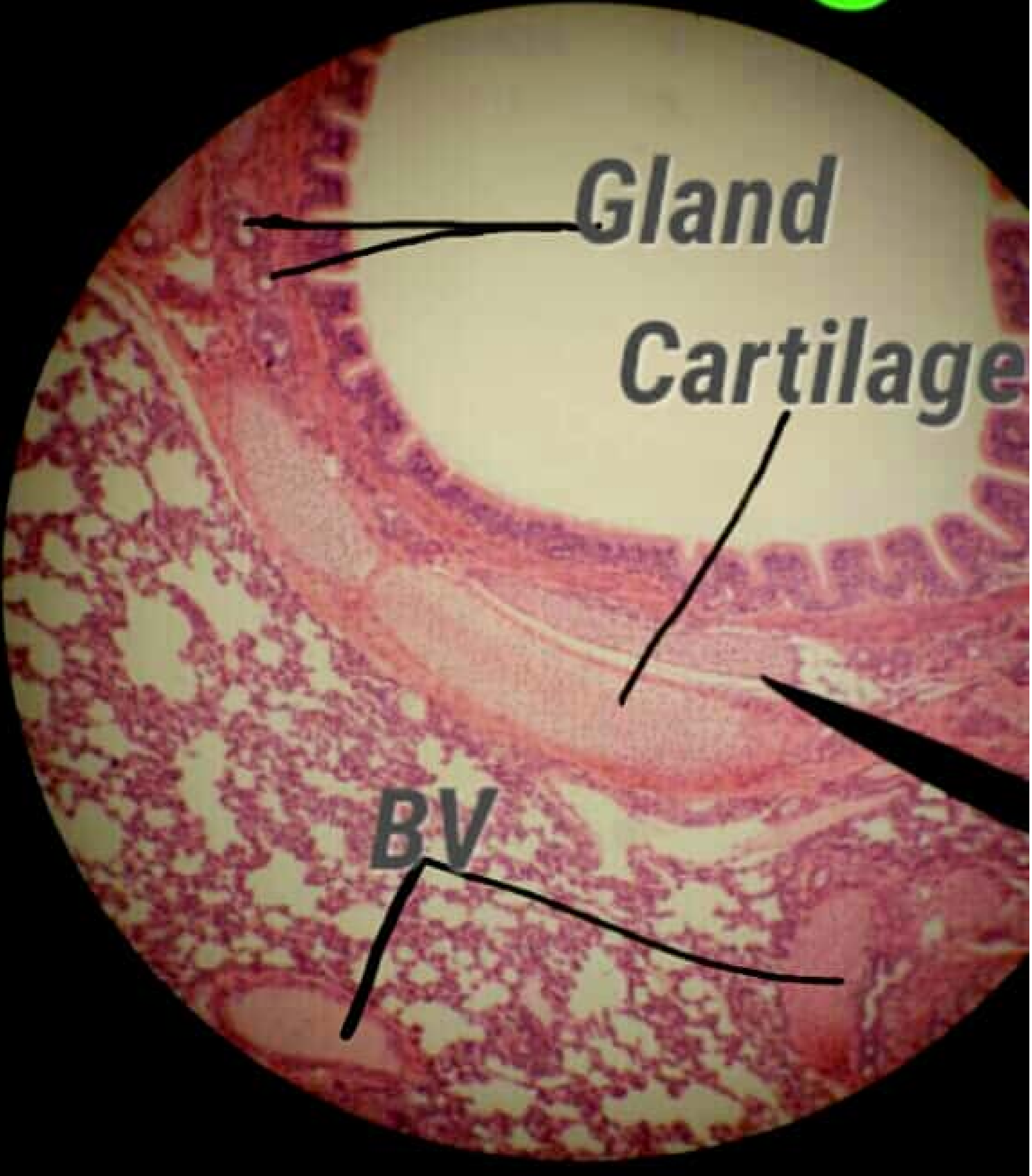

Terminal bronchi
BV
Lung* ج
Lung


Terminal bronchial
BV
Sac
Alvoili
Lung ج*
Done by YM

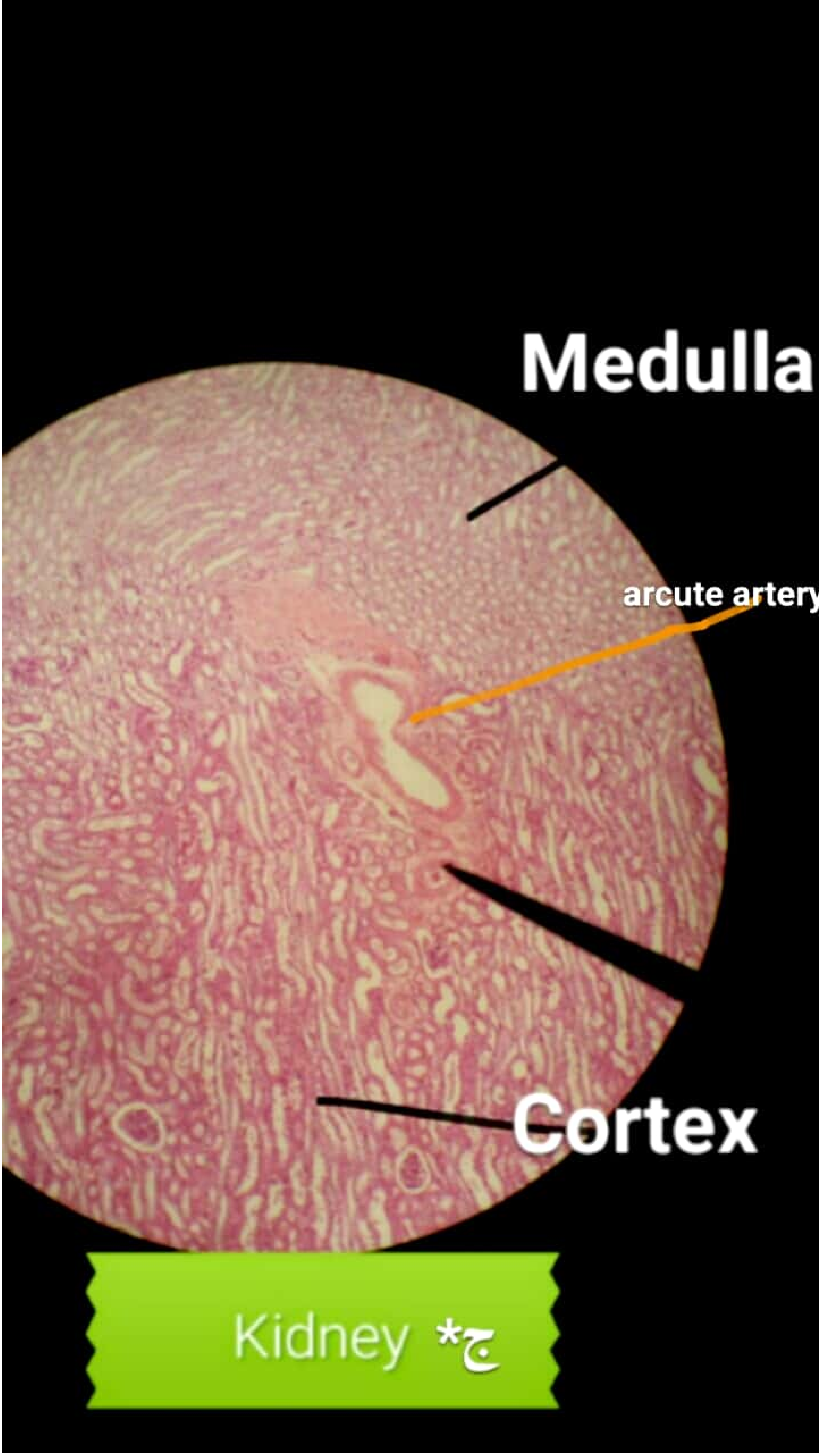
• Trachea *ج •

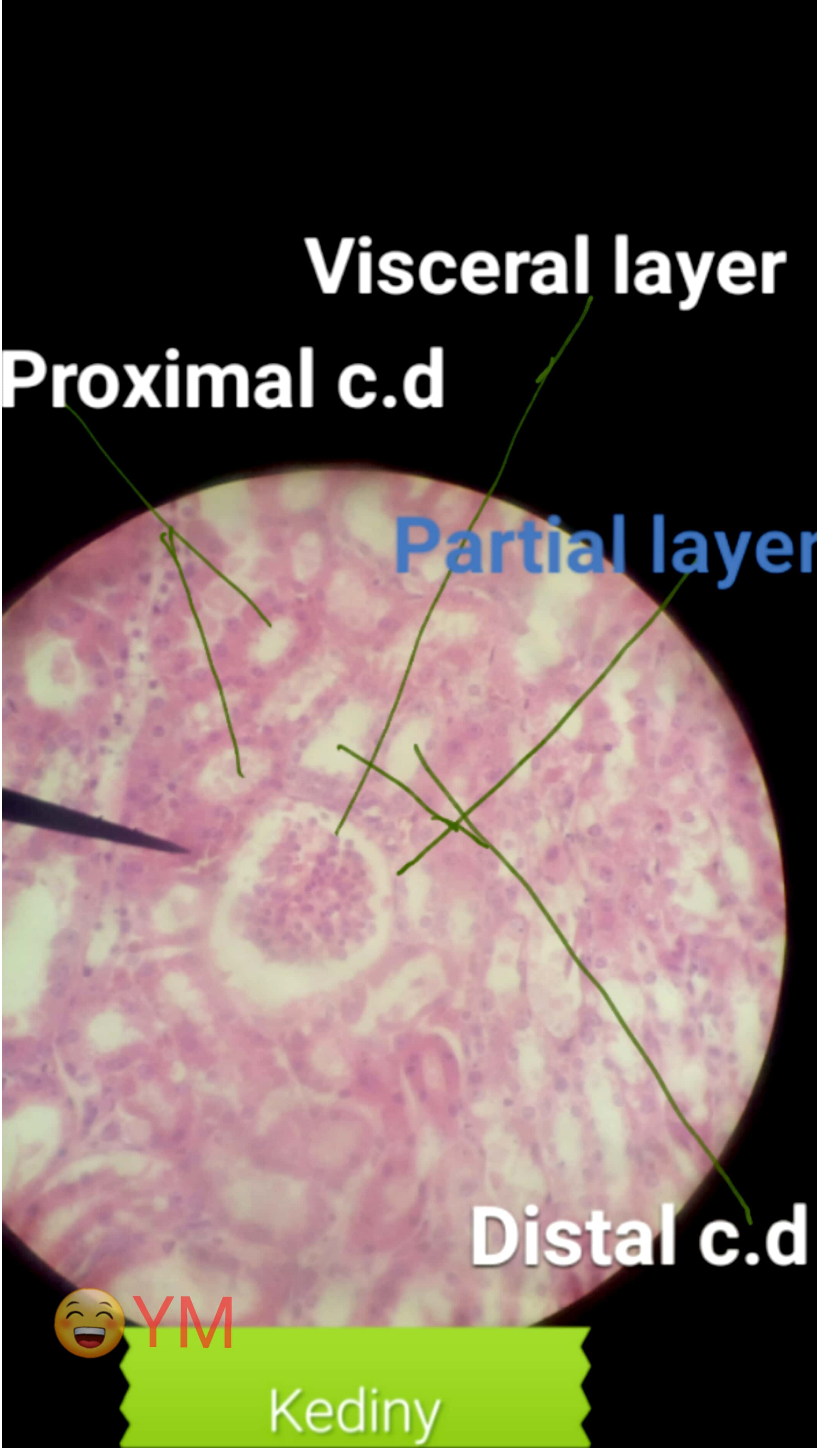

Pseudostratifed
S.M
Cartilage

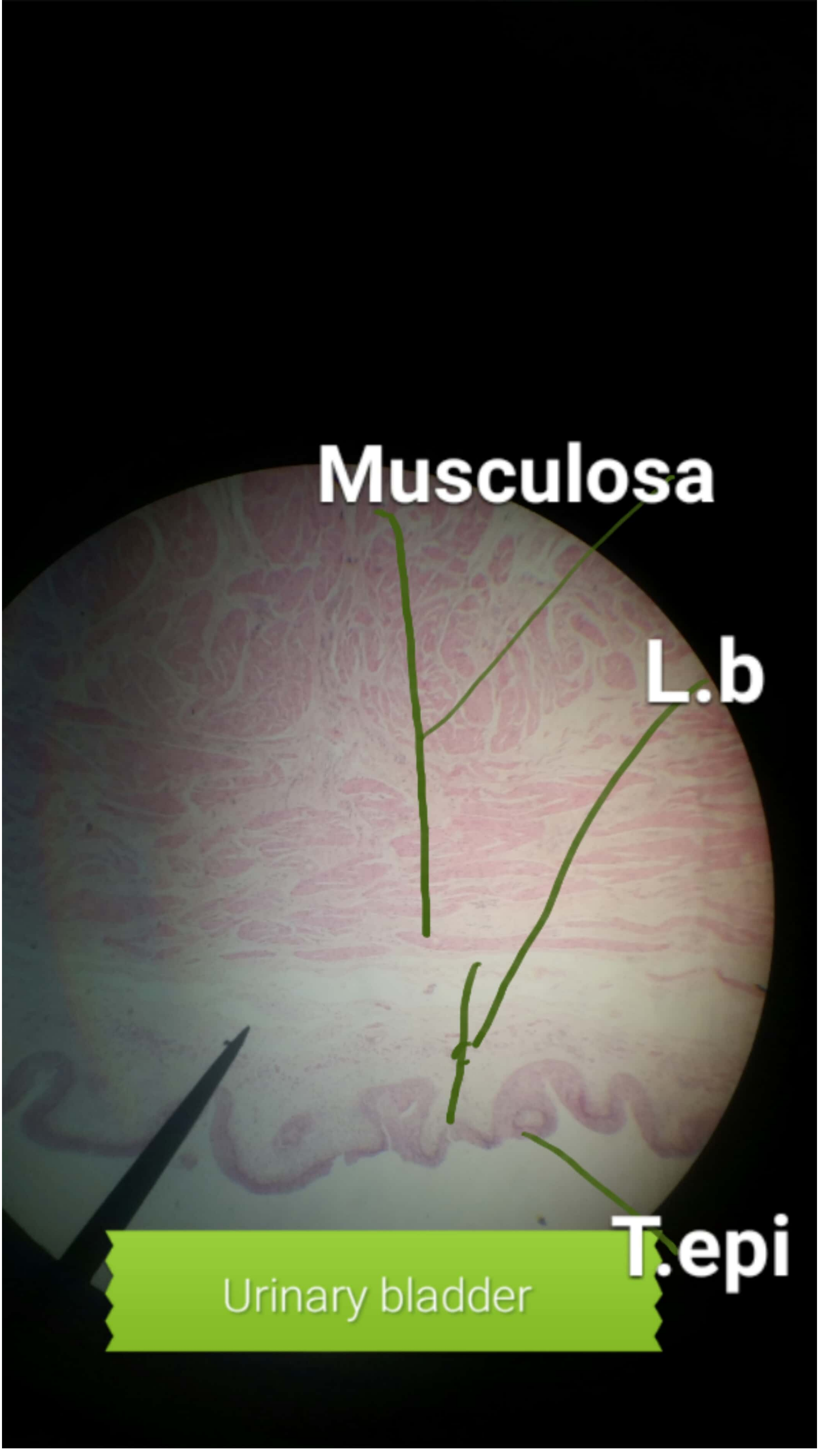
intra lung

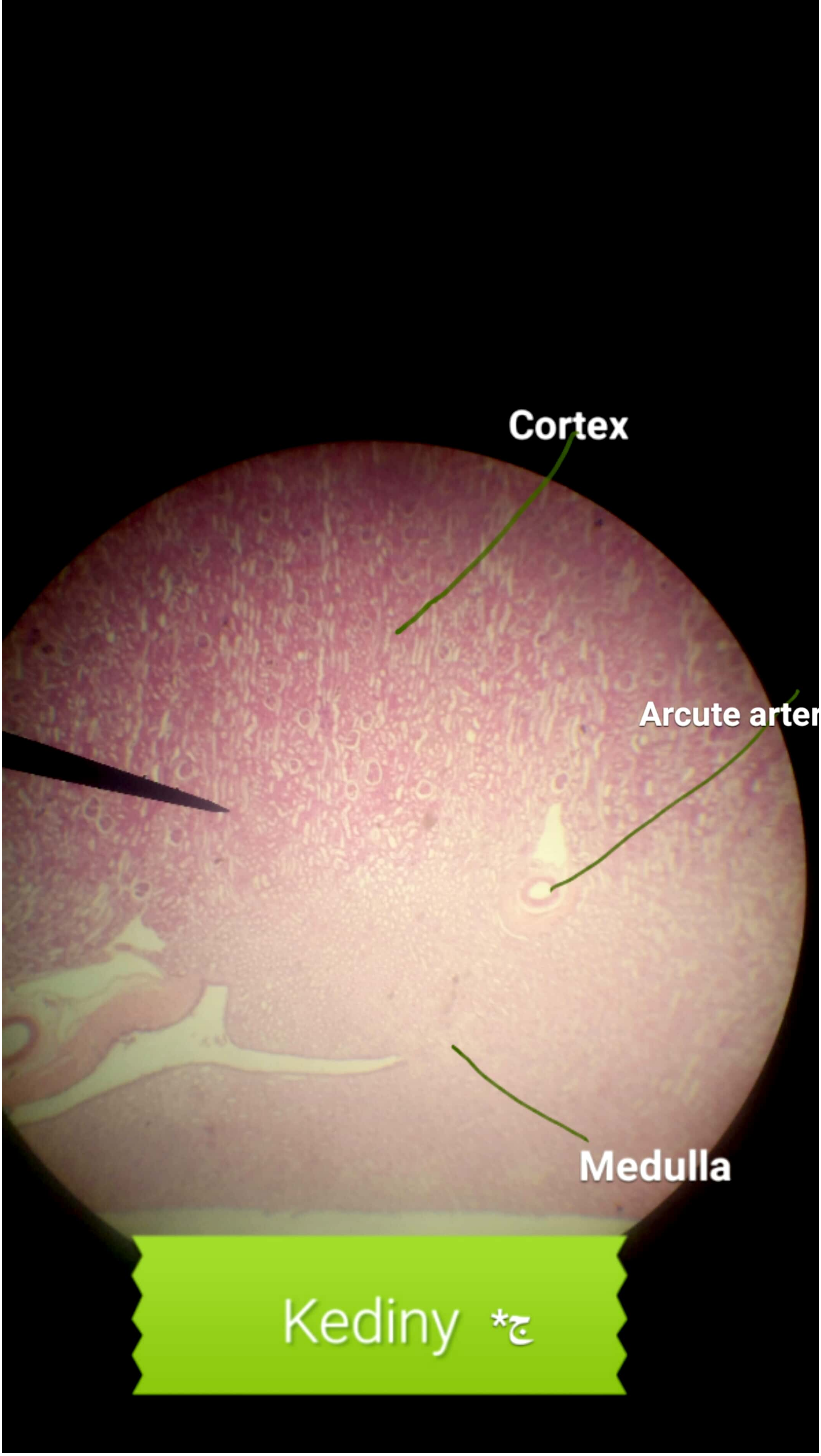

Gland
Cartilage
BV

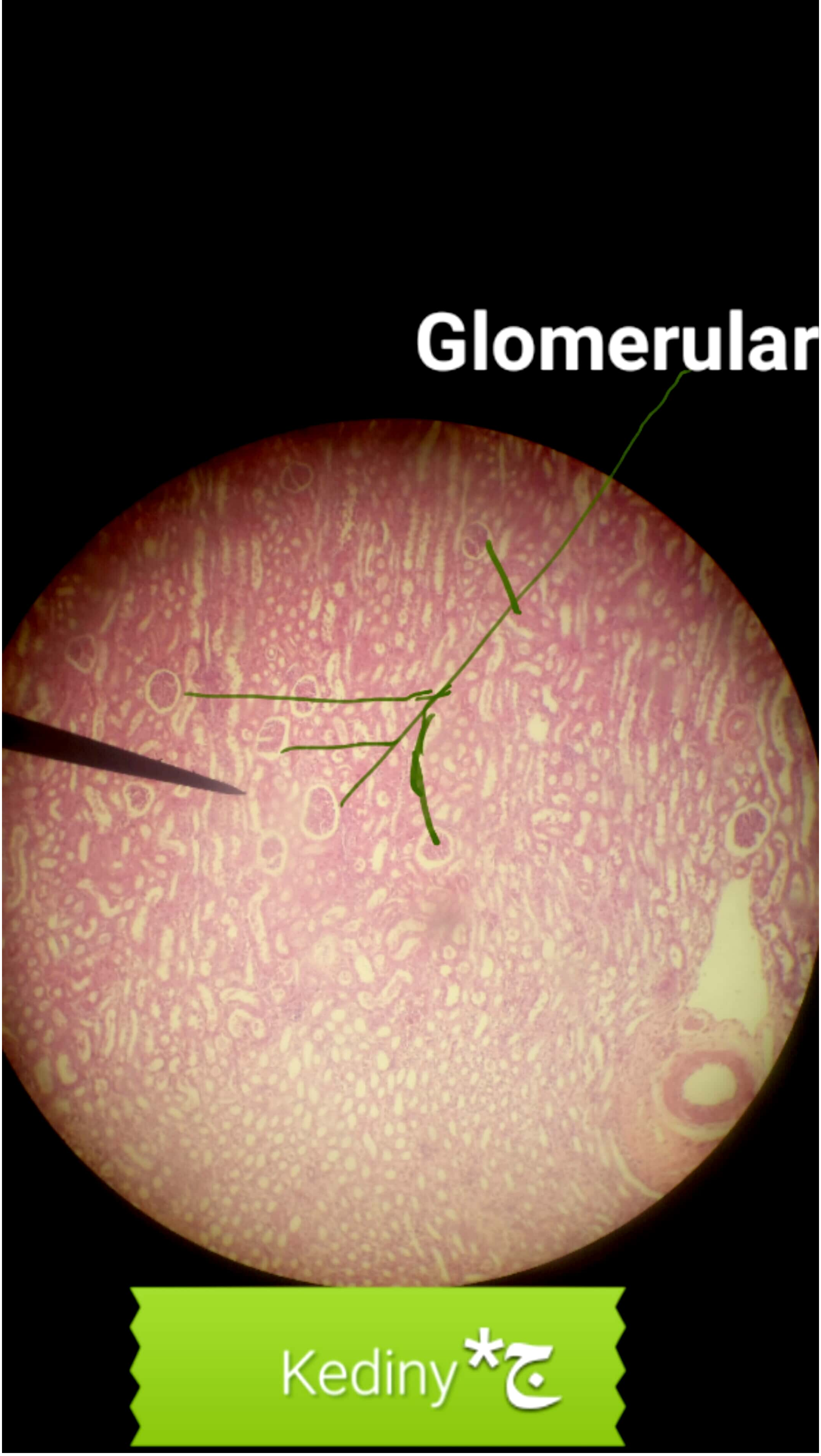
done by YM ج*


Medulla
arcute artery
Cortex
Kidney *ج

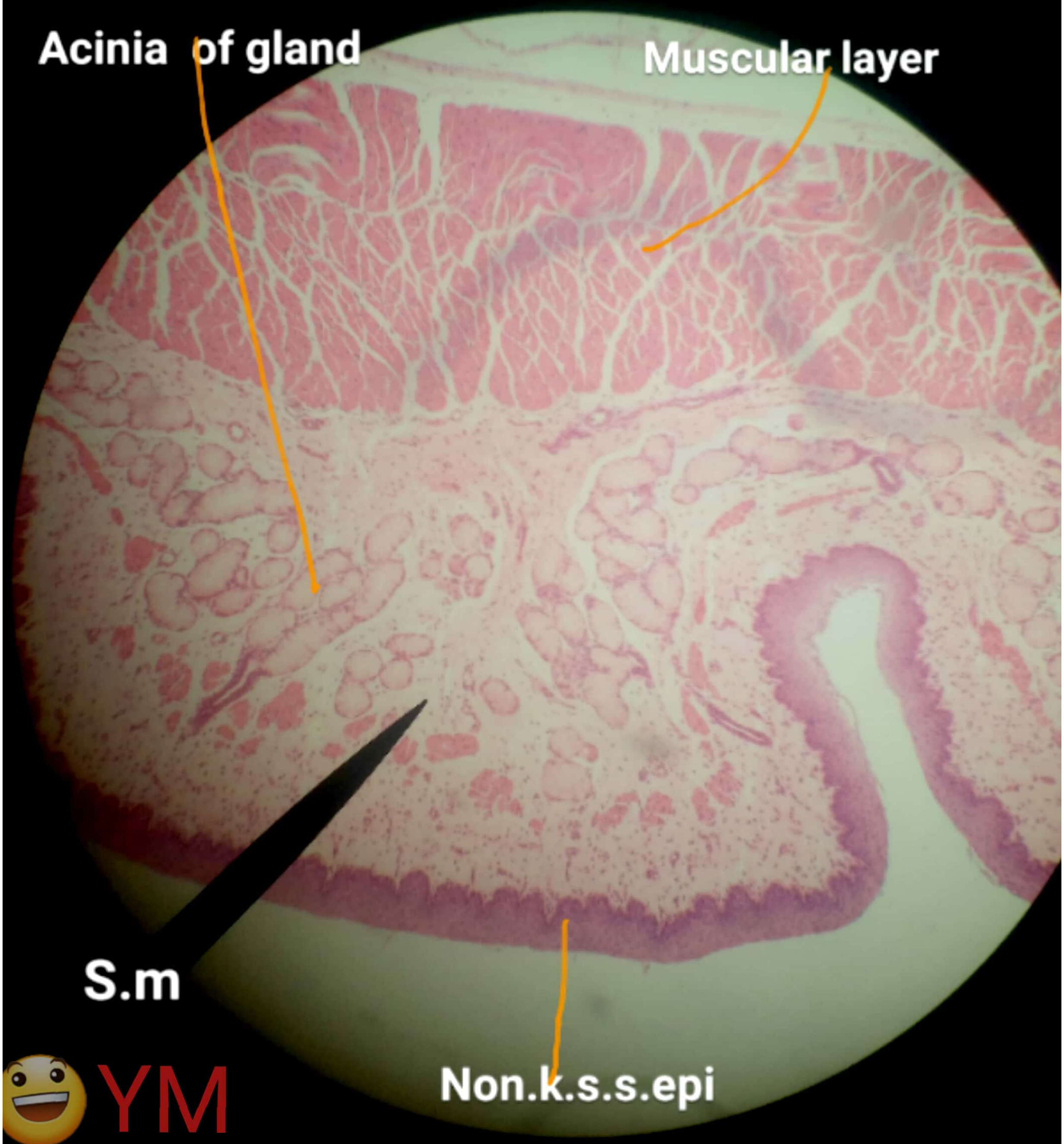

Visceral layer
Proximal c.d
Partial layer
Distal c.d
YM
Kediny


Musculosa
L.b
T.epi
Urinary bladder

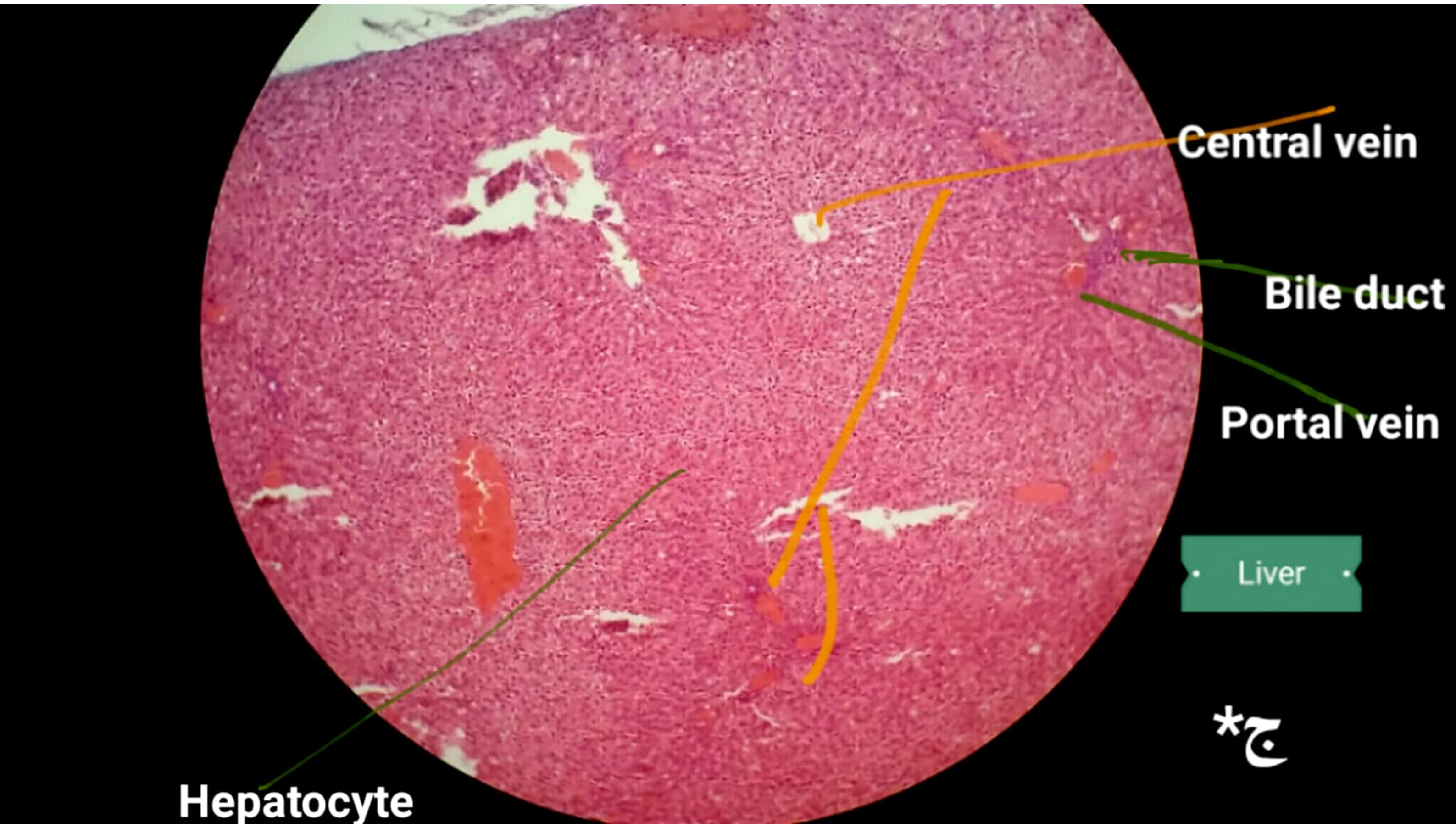

Cortex
Arcute arter
Medulla
Kediny ج*

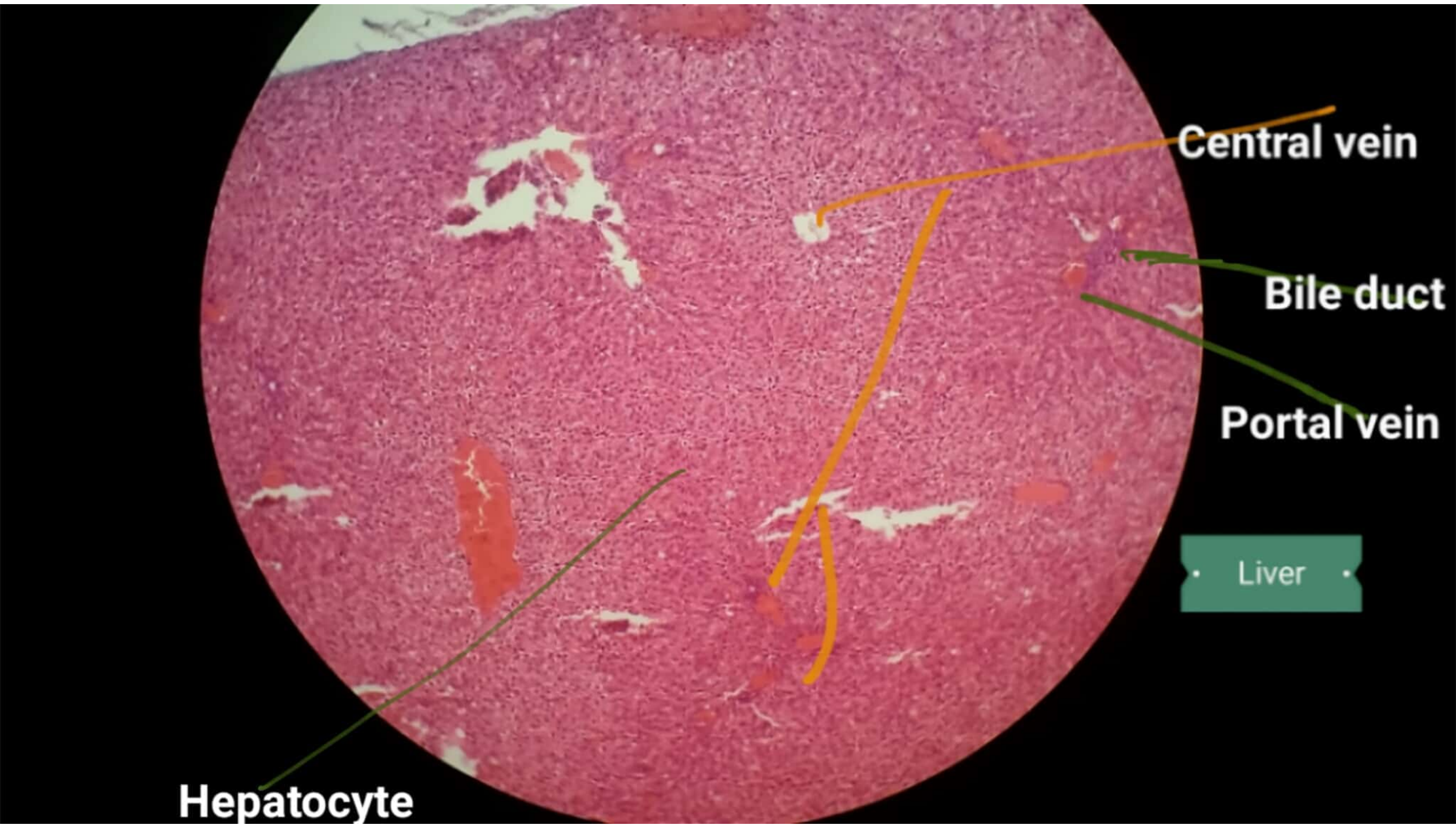

Glomerular
Kediny*ج

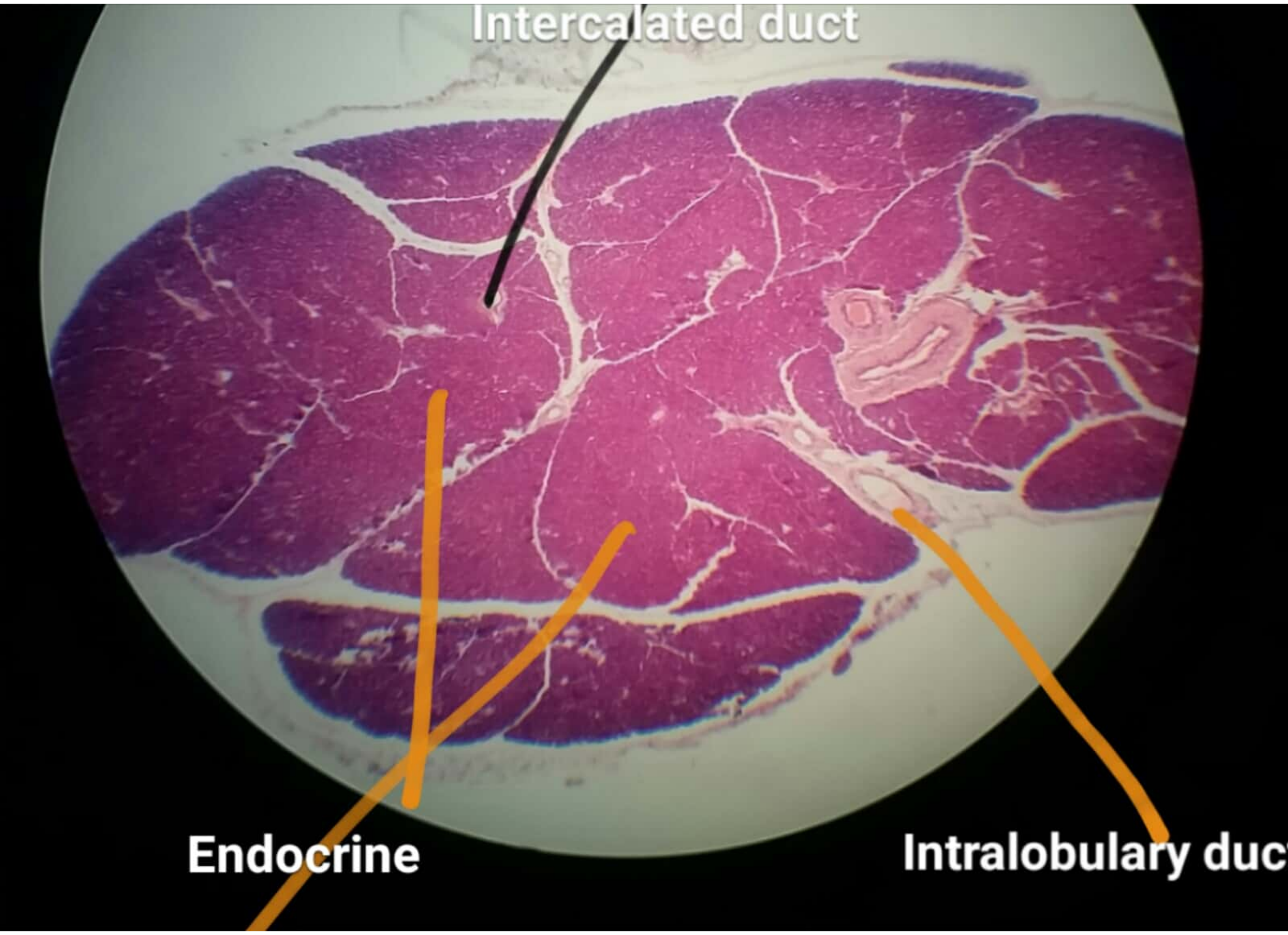
Esophagus *ج

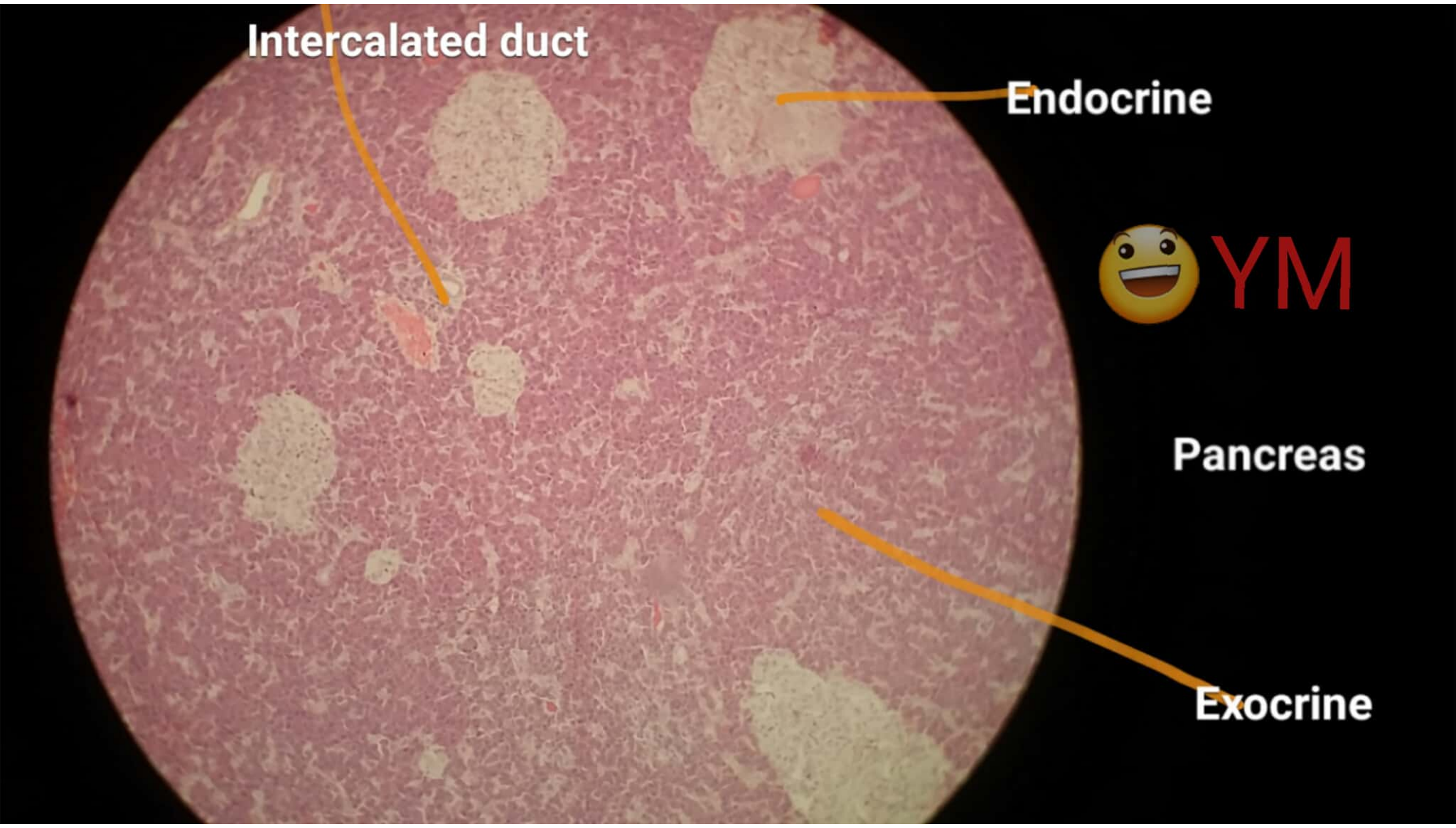

Acinia of gland
Muscular layer
S.m
Non.k.s.s.epi

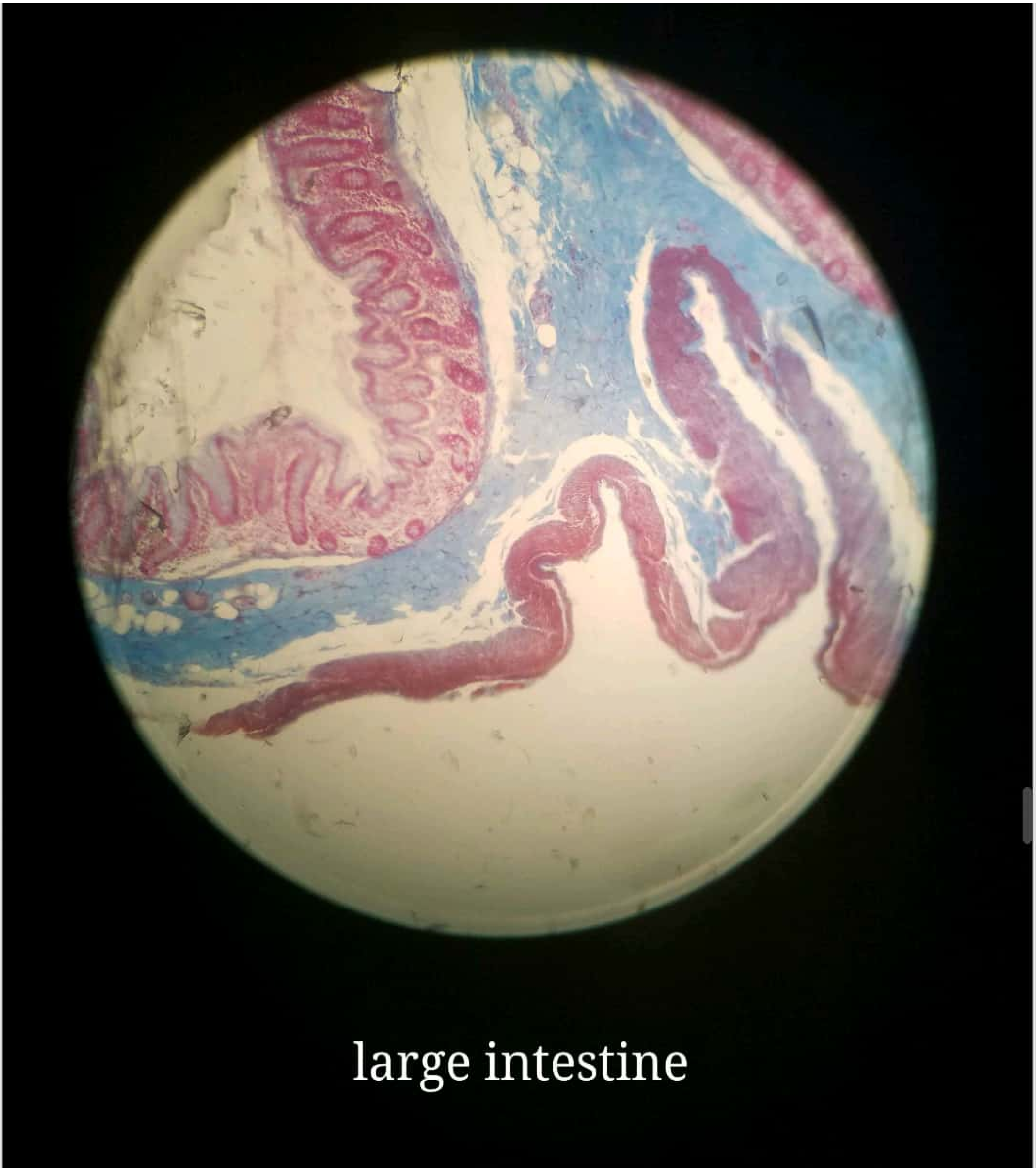
YM


Central vein
Bile duct
Portal vein
Liver
*ج
Hepatocyte

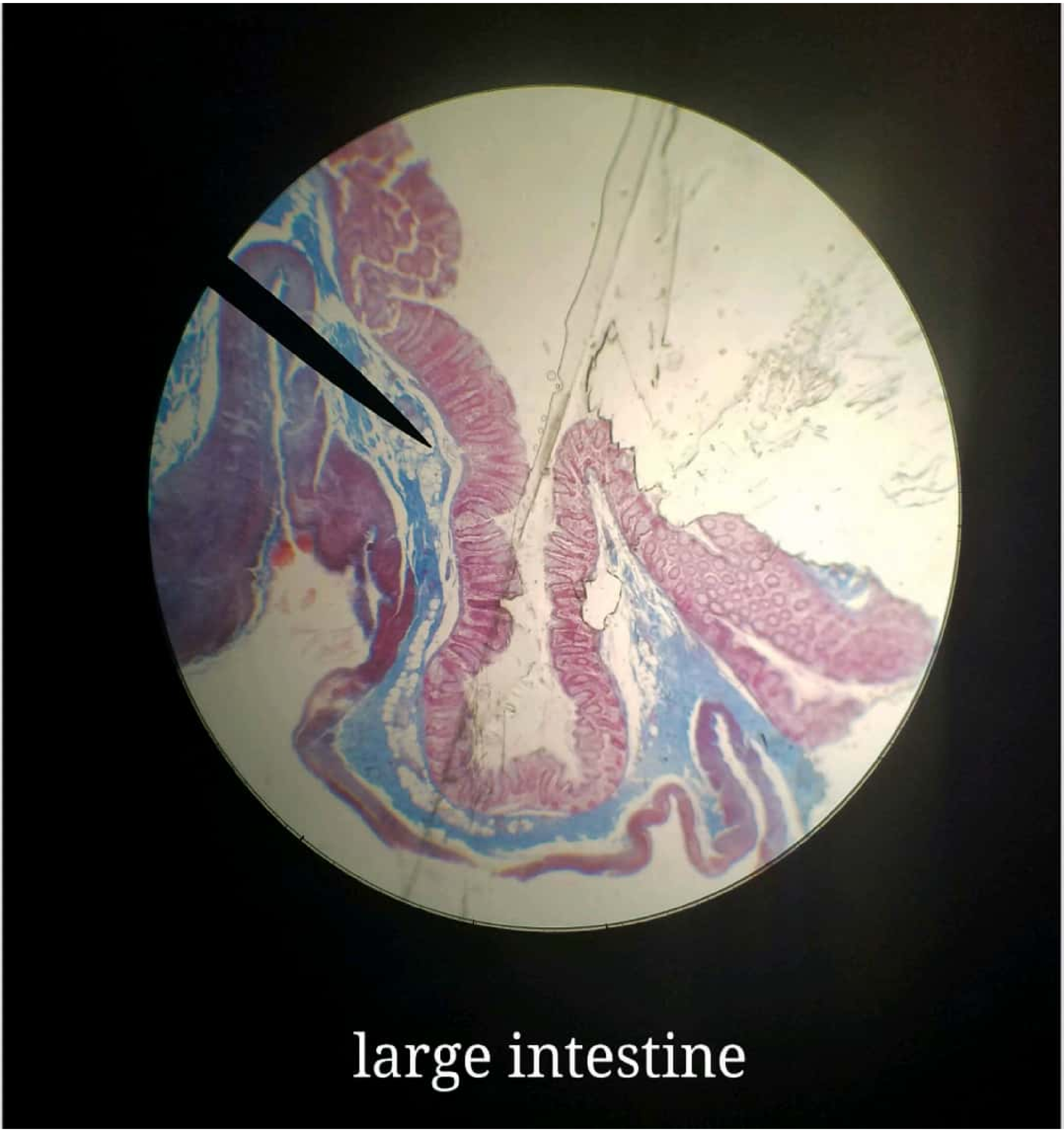

Central vein
Bile duct
Portal vein
Liver
Hepatocyte


Intercalated duct
Endocrine
Intralobulary duc

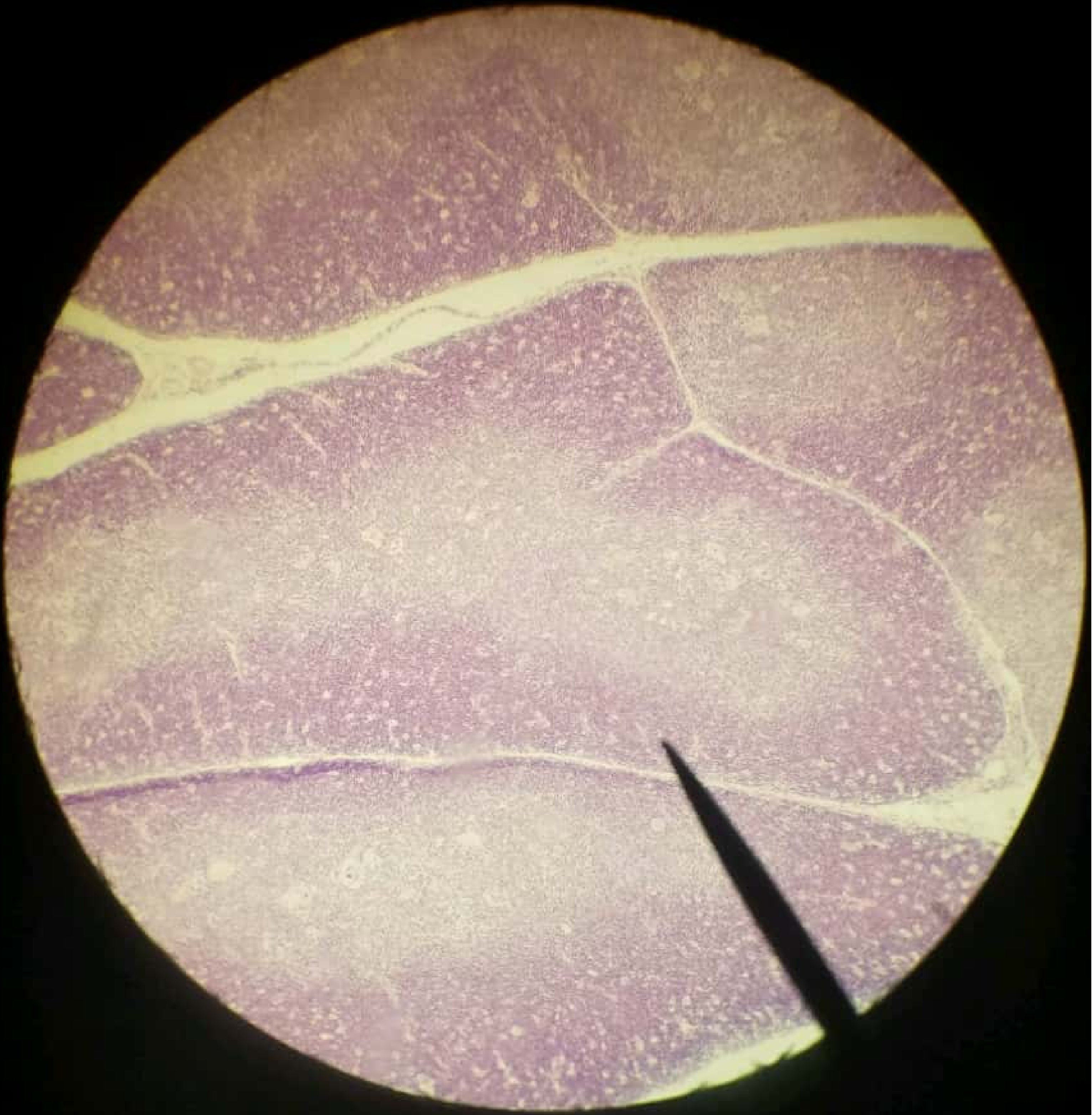

Intercalated duct
Endocrine
YM
Pancreas
Exocrine



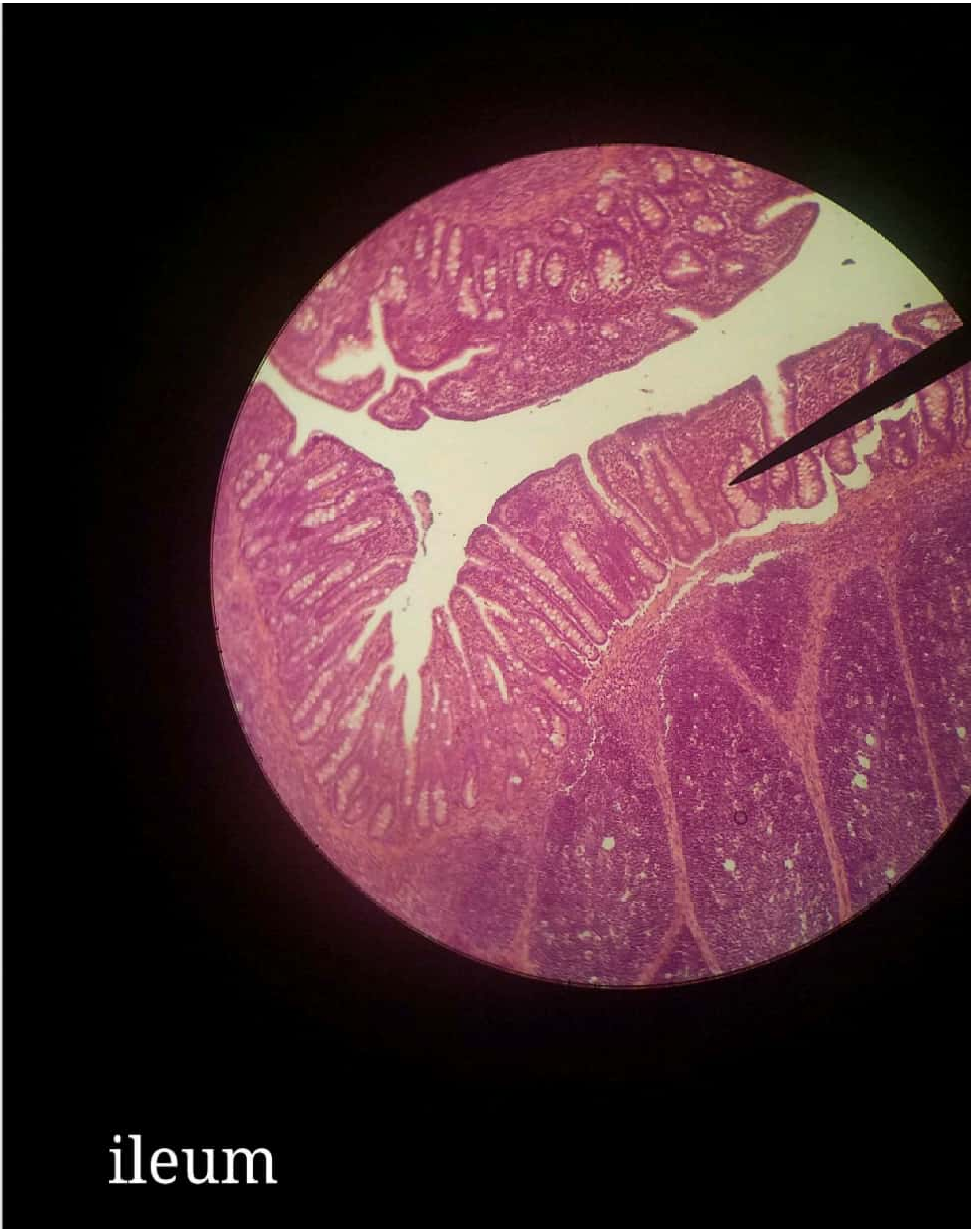
large intestine



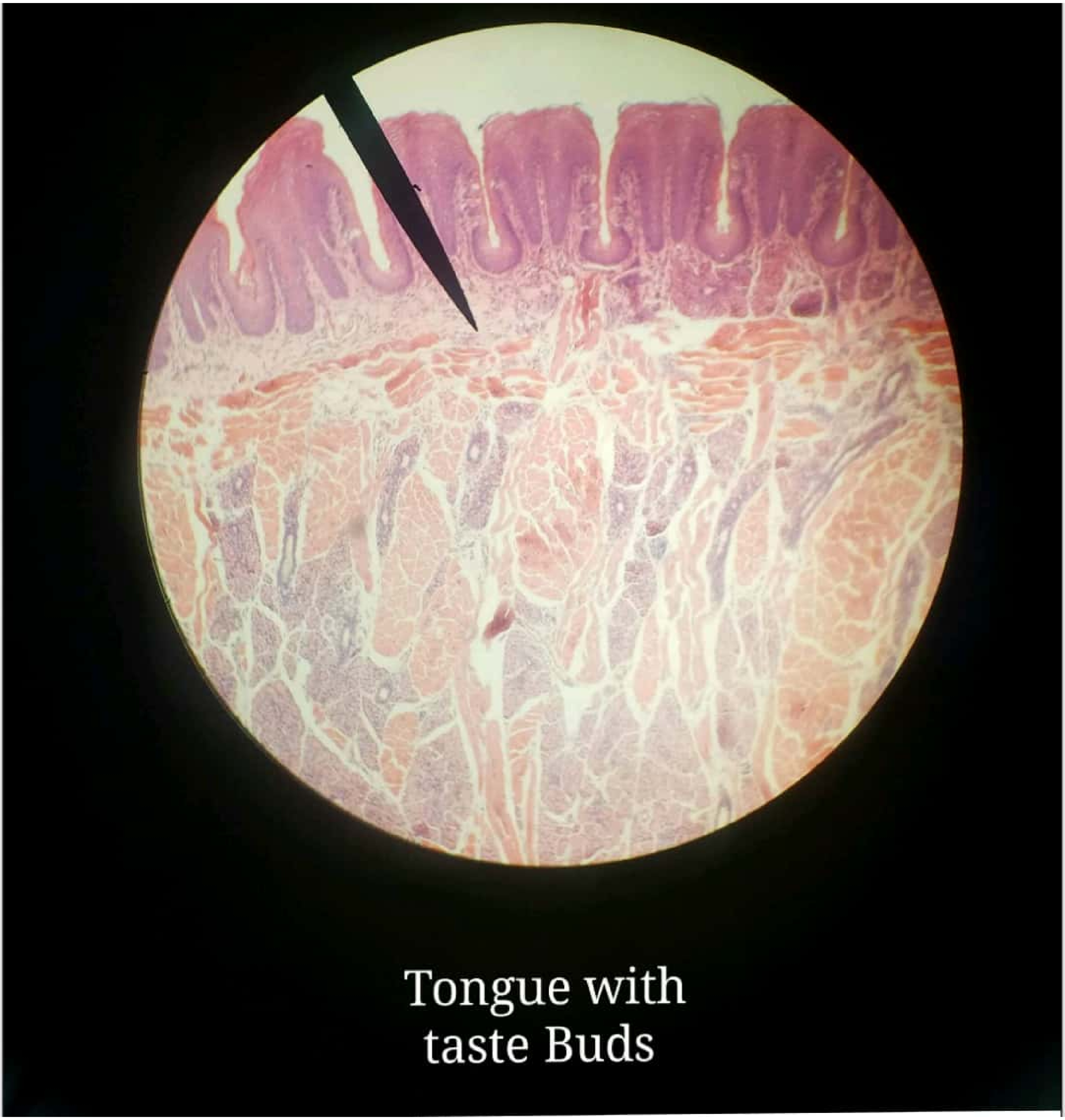
large intestine



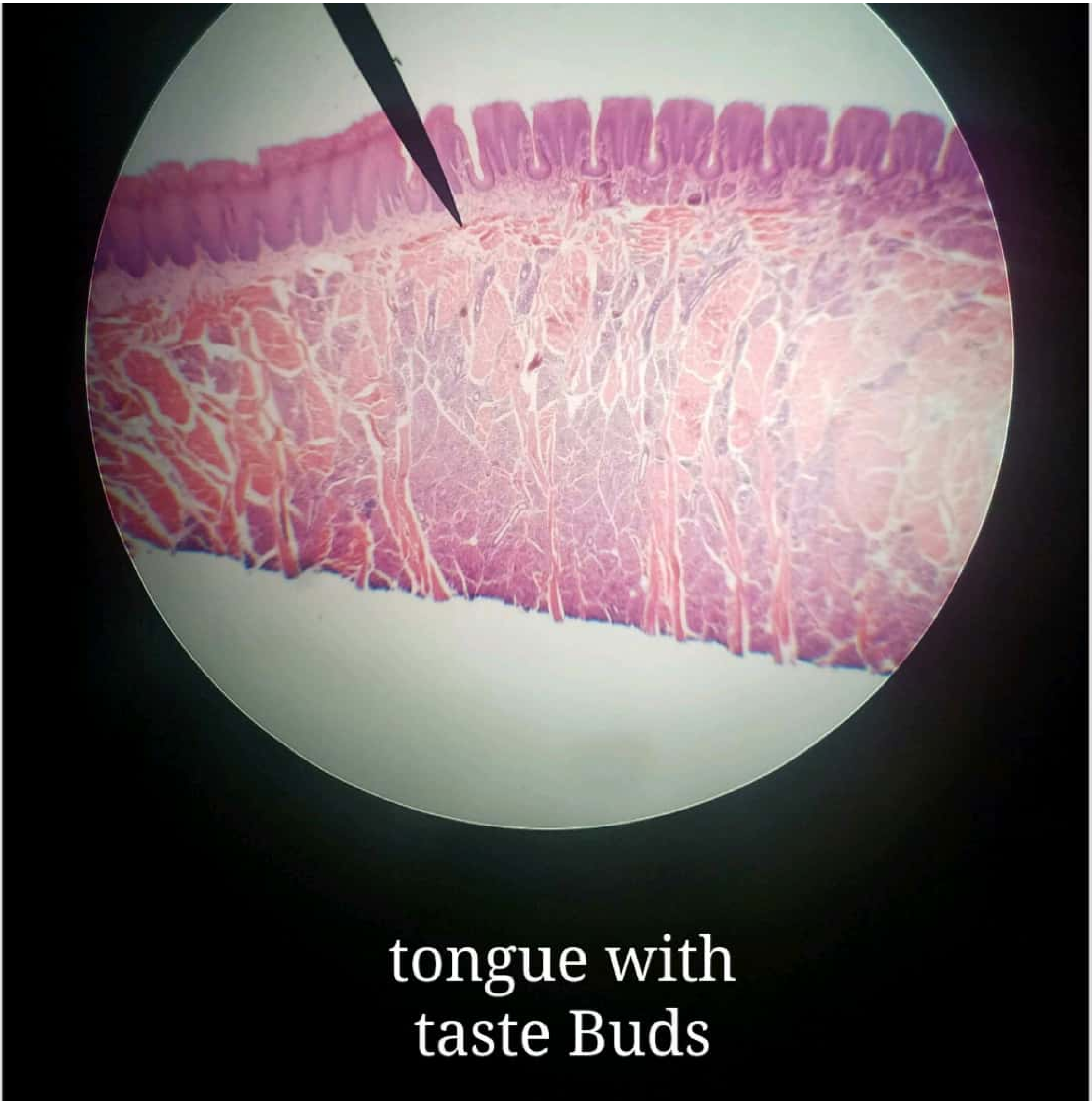
thymus gland



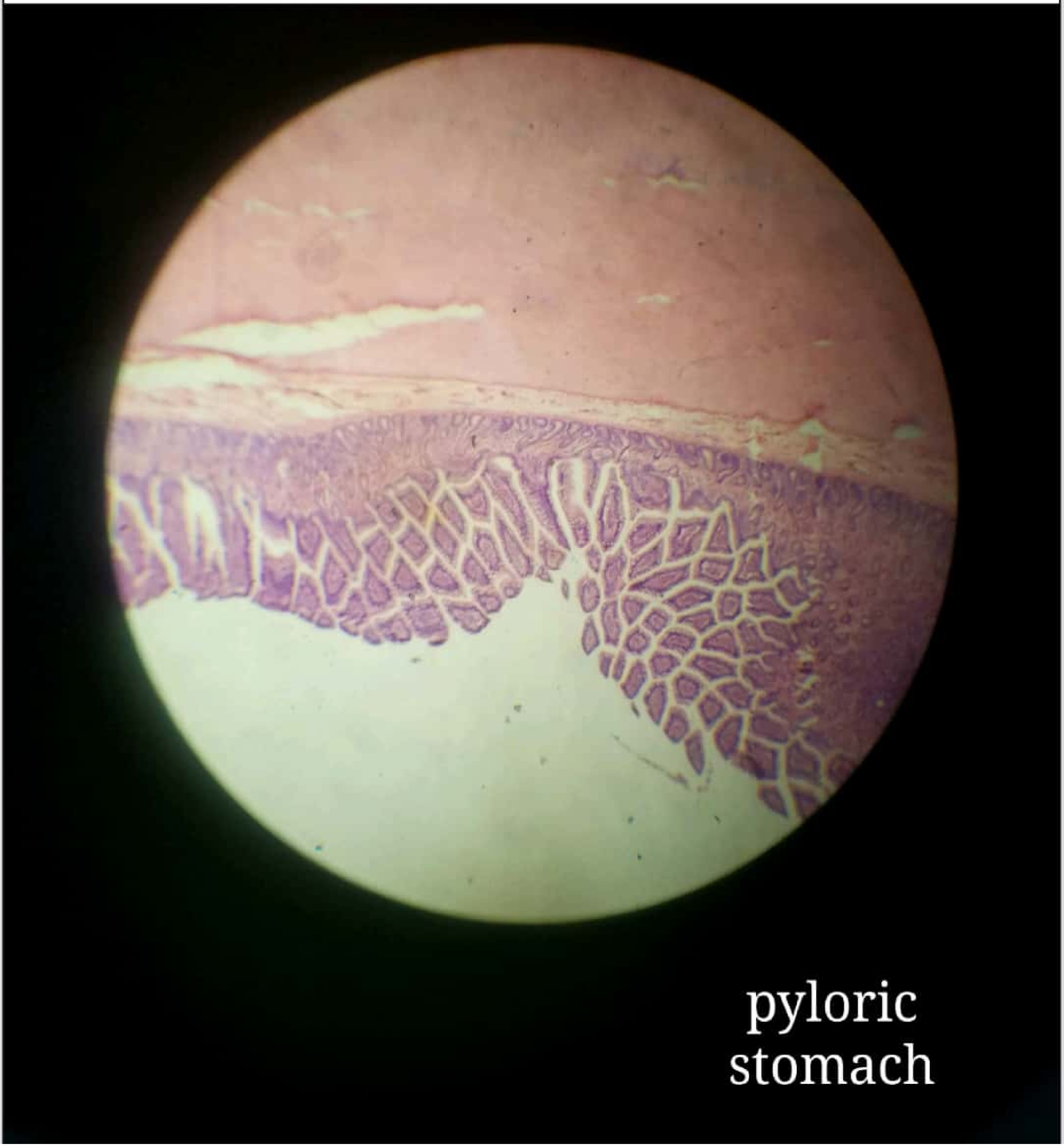
ileum



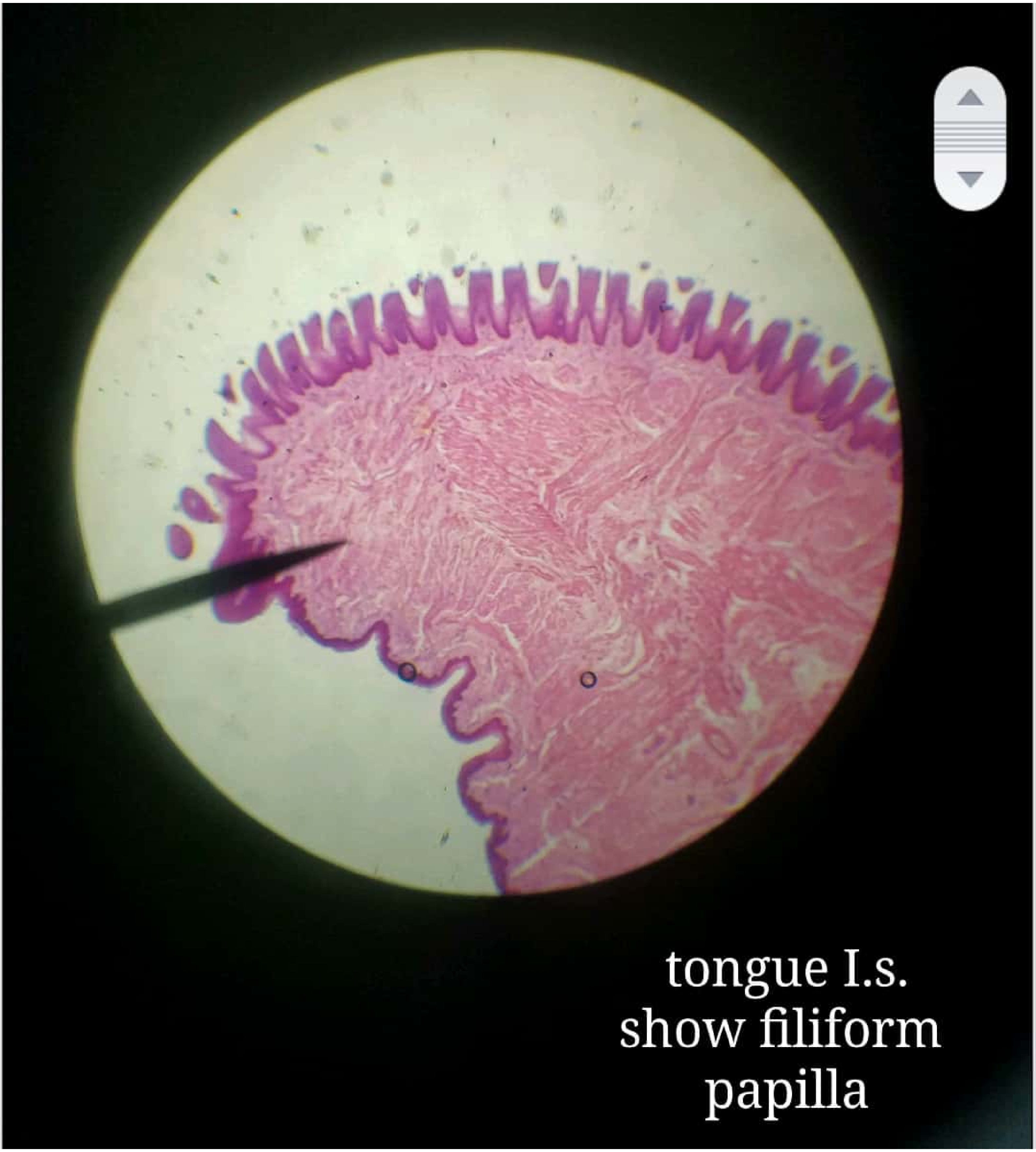
Tongue with
taste Buds



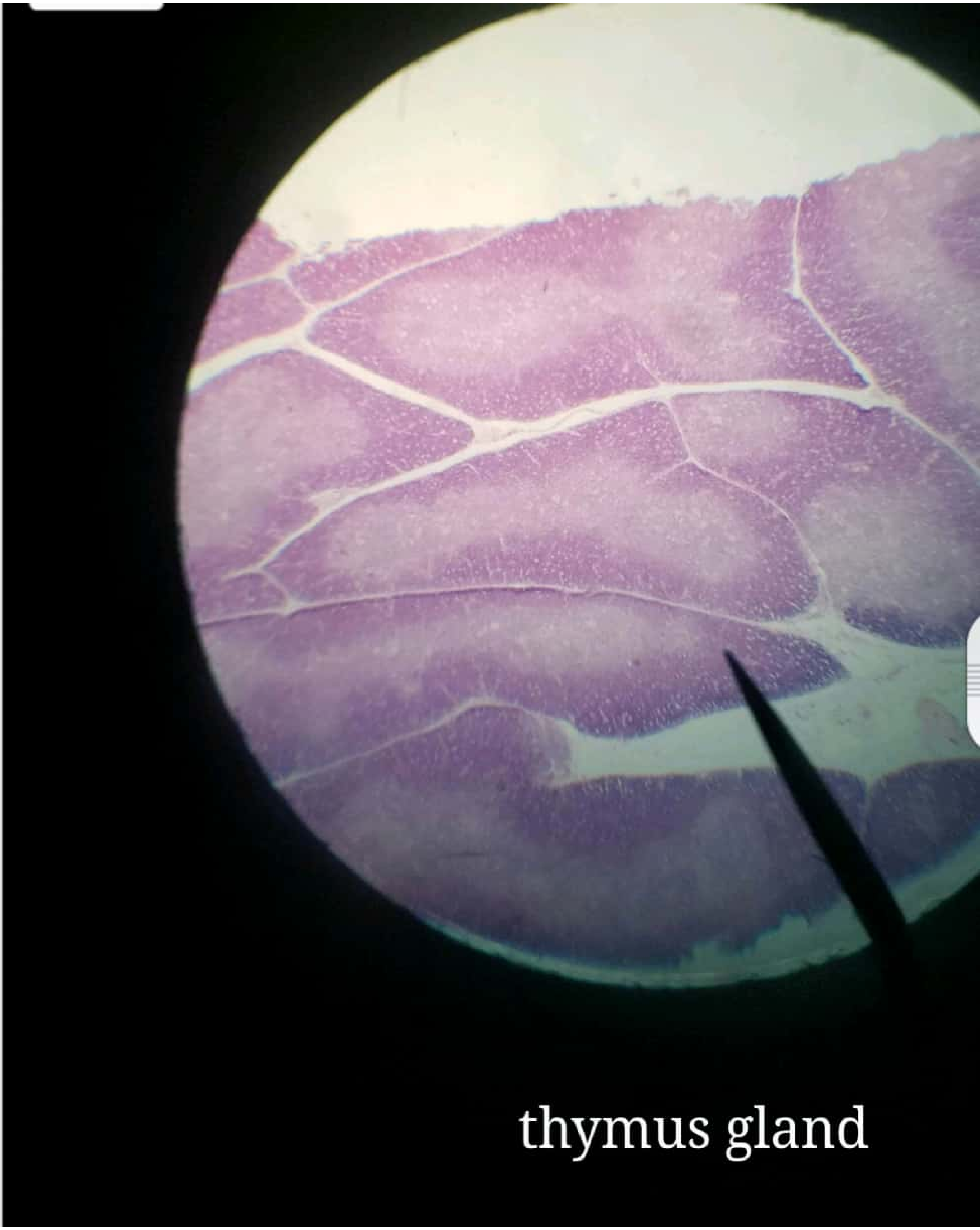
tongue with taste Buds



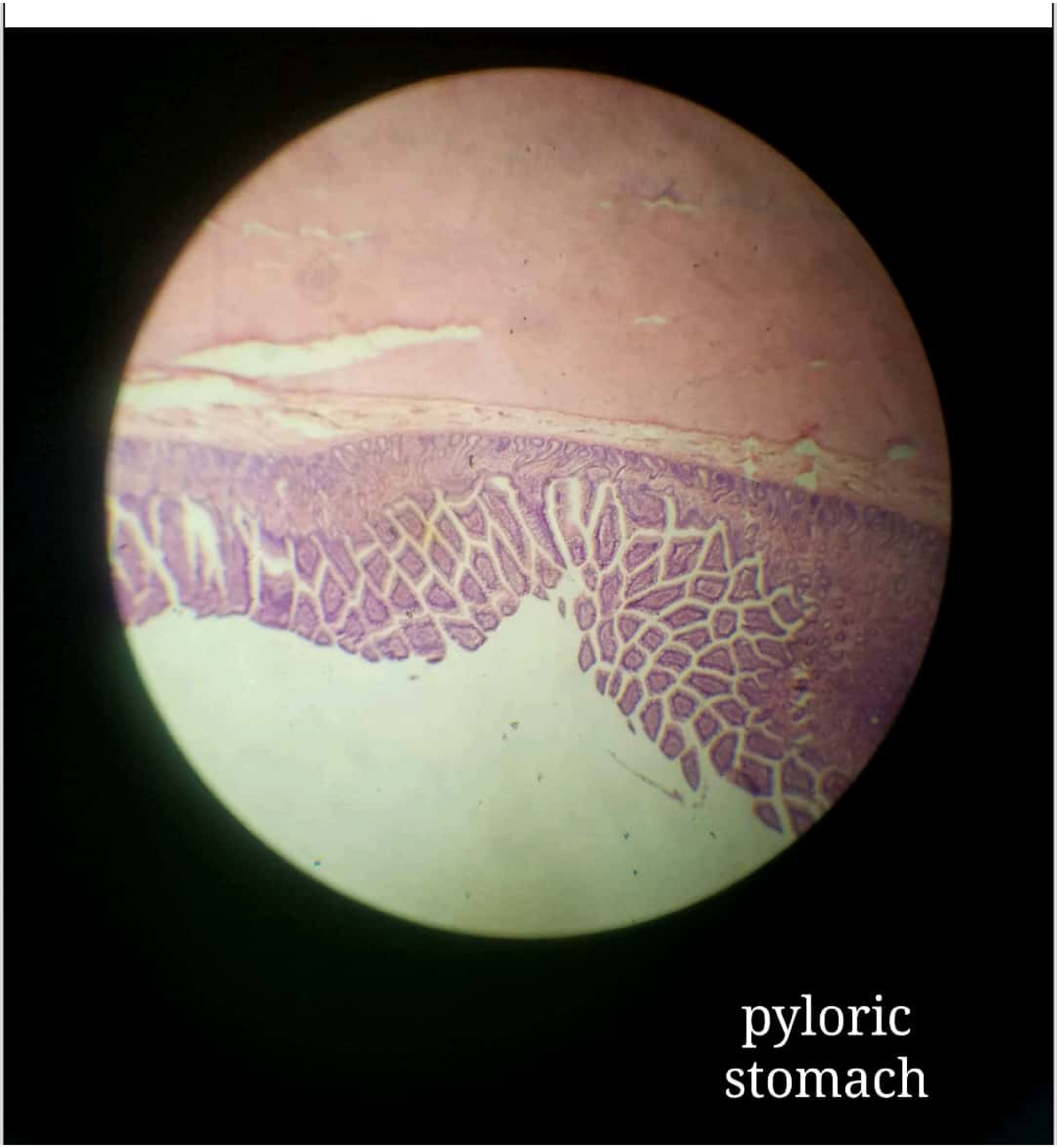
pyloric stomach



tongue I.s.
show filiform
papilla

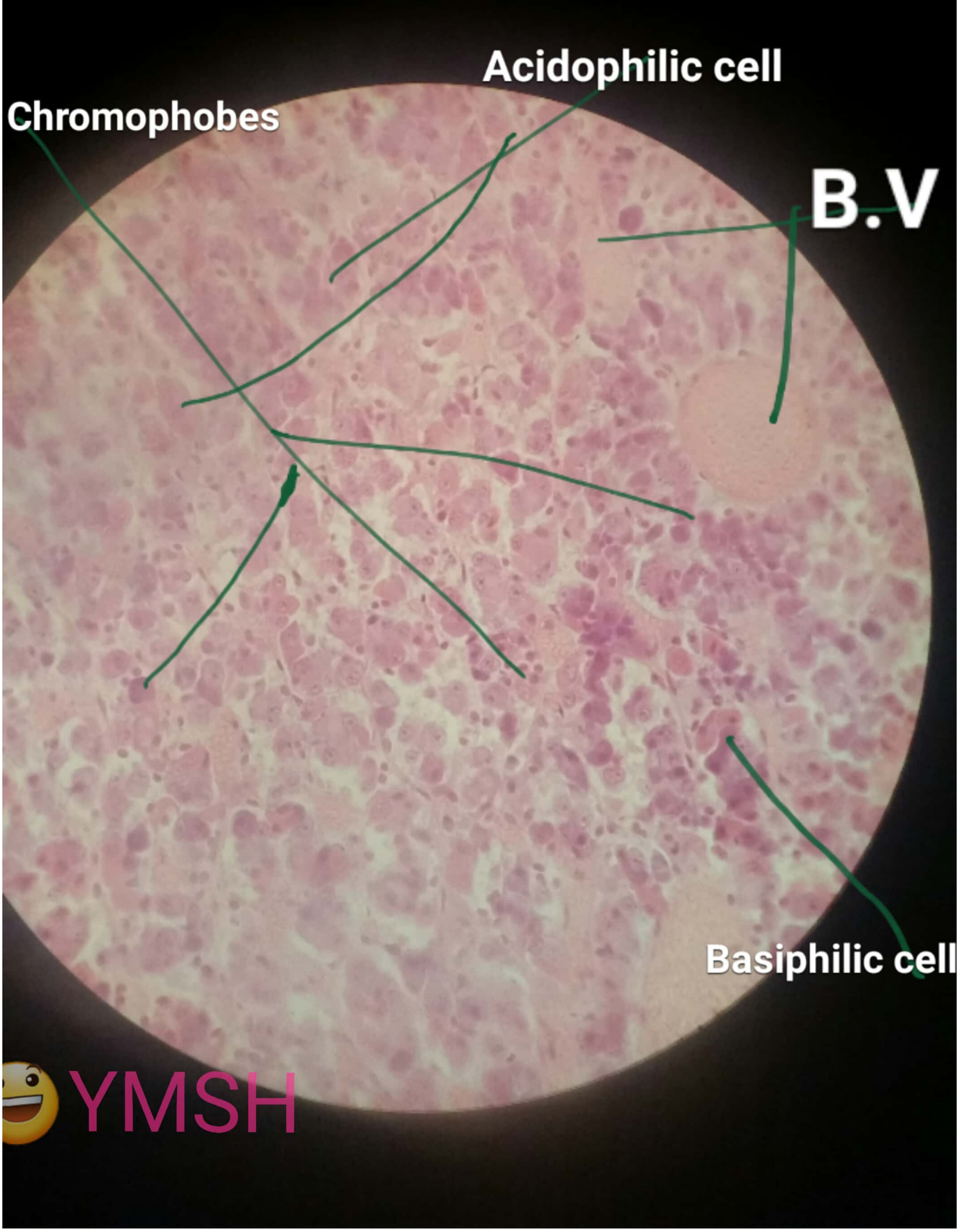


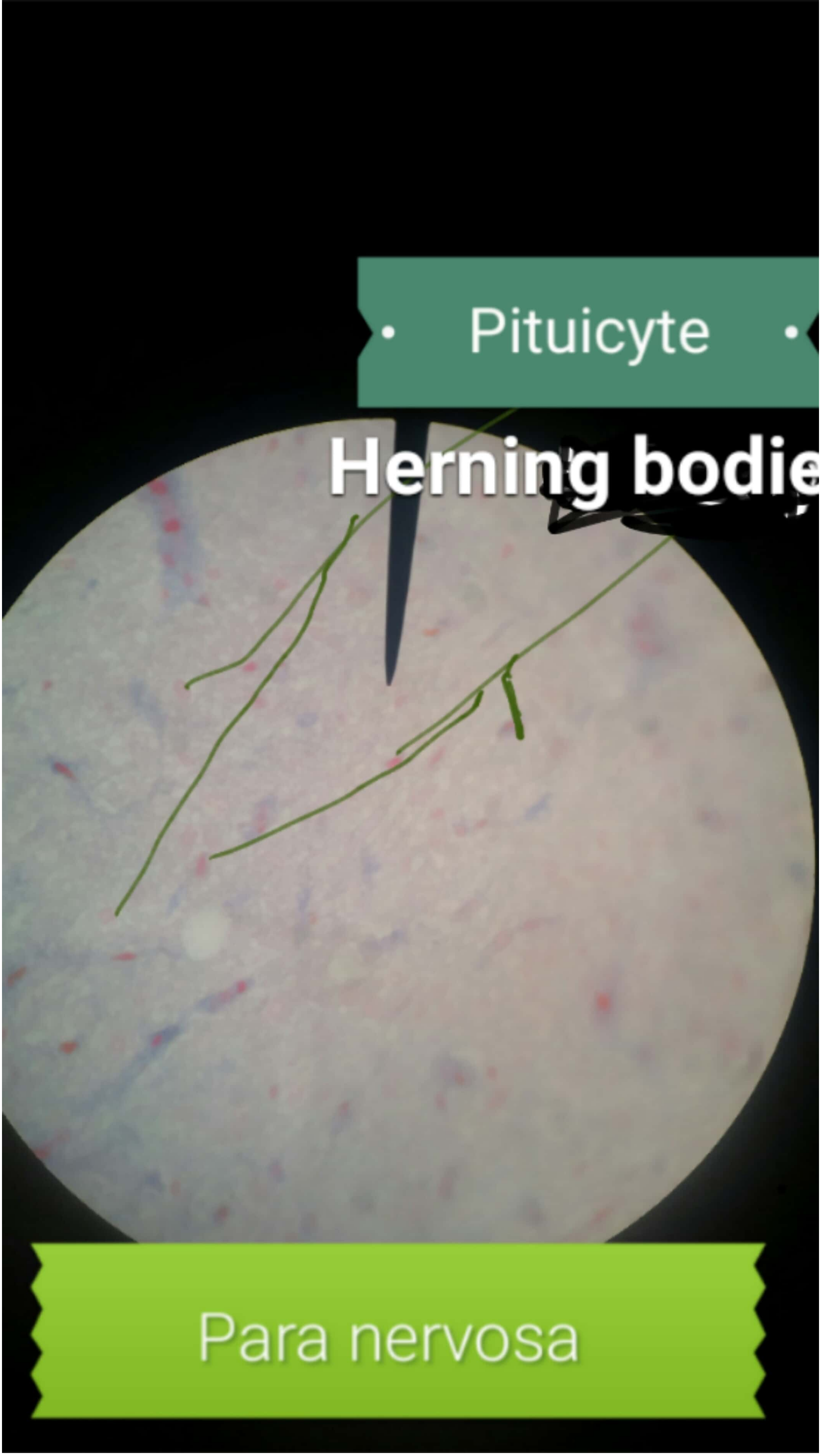
thymus gland



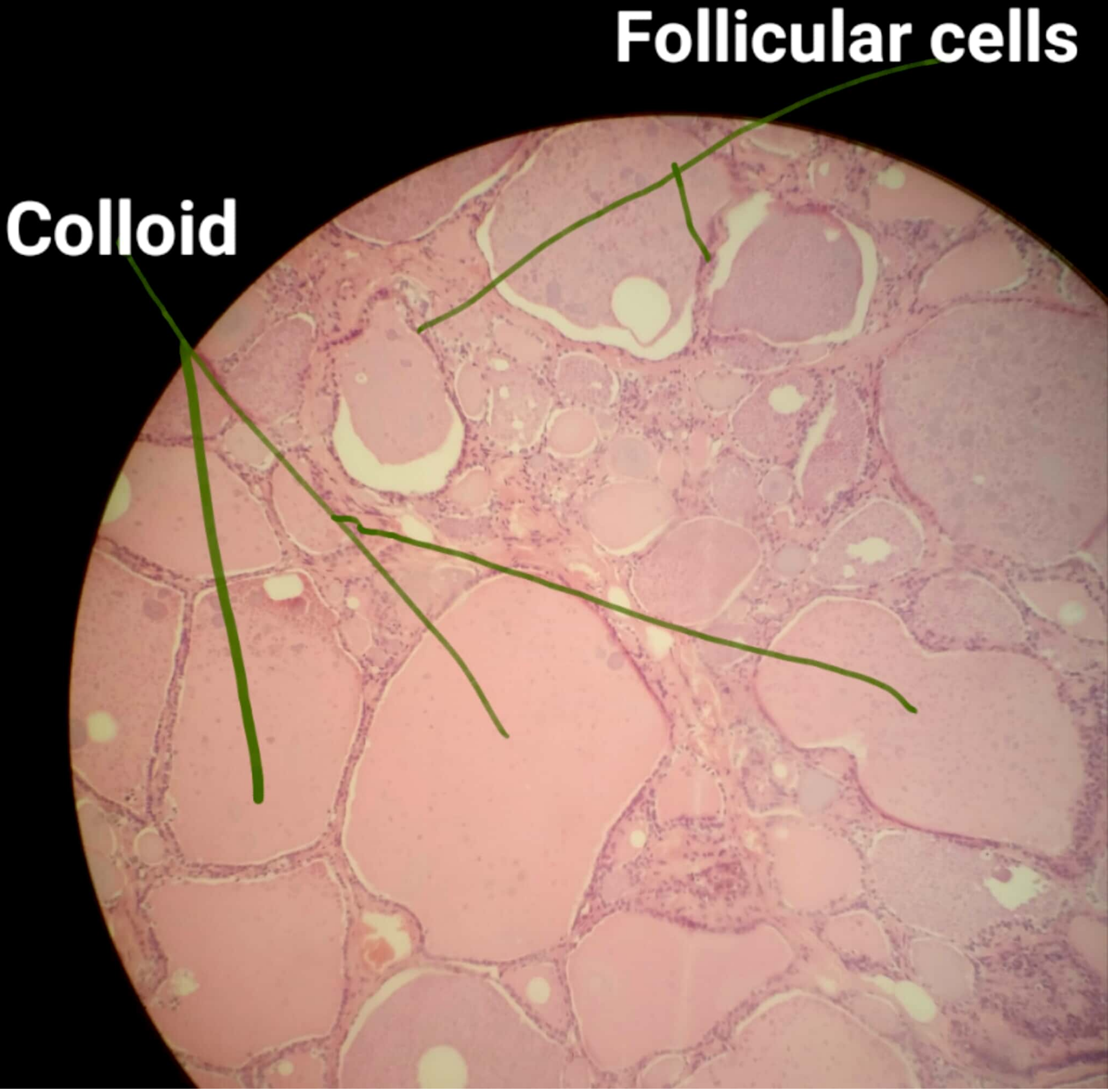
pyloric stomach

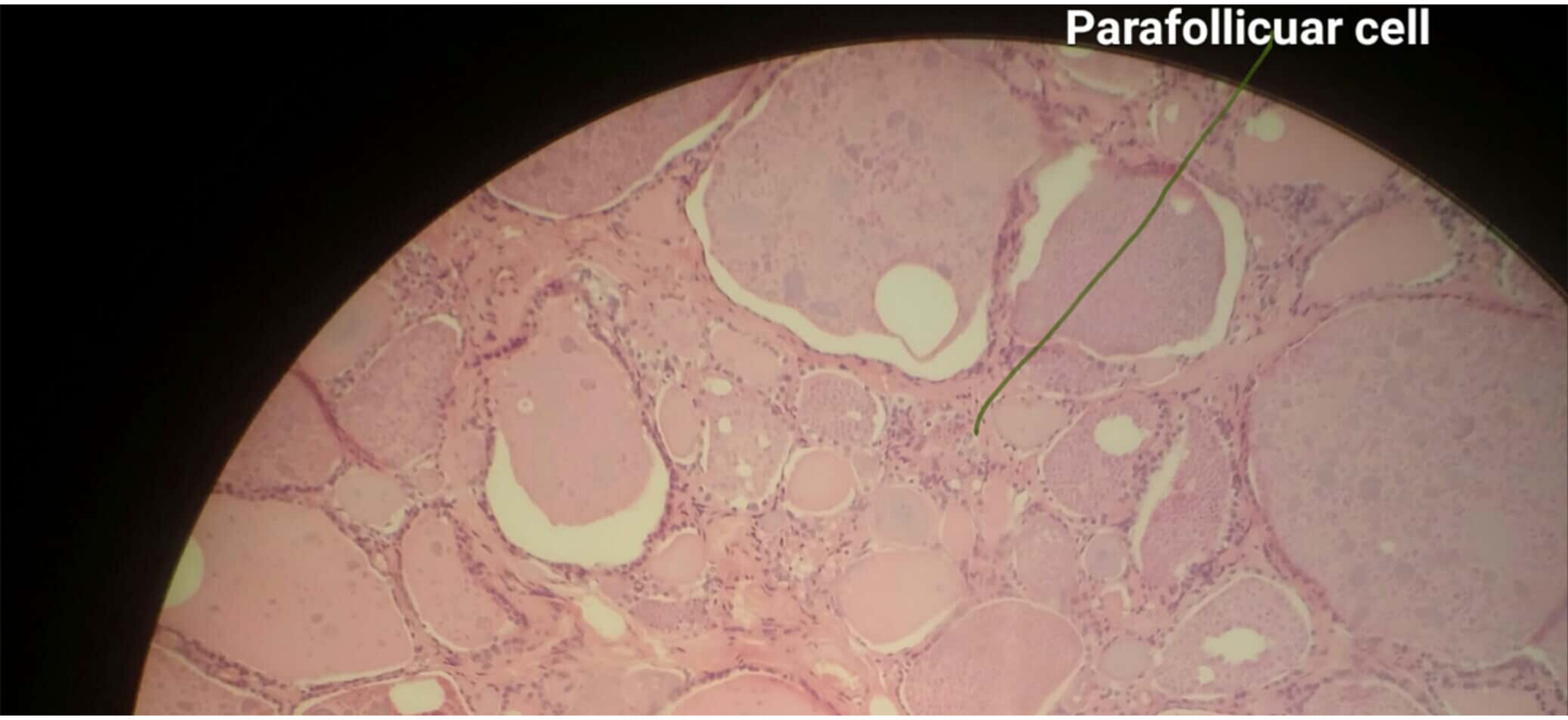
Pituitary gland

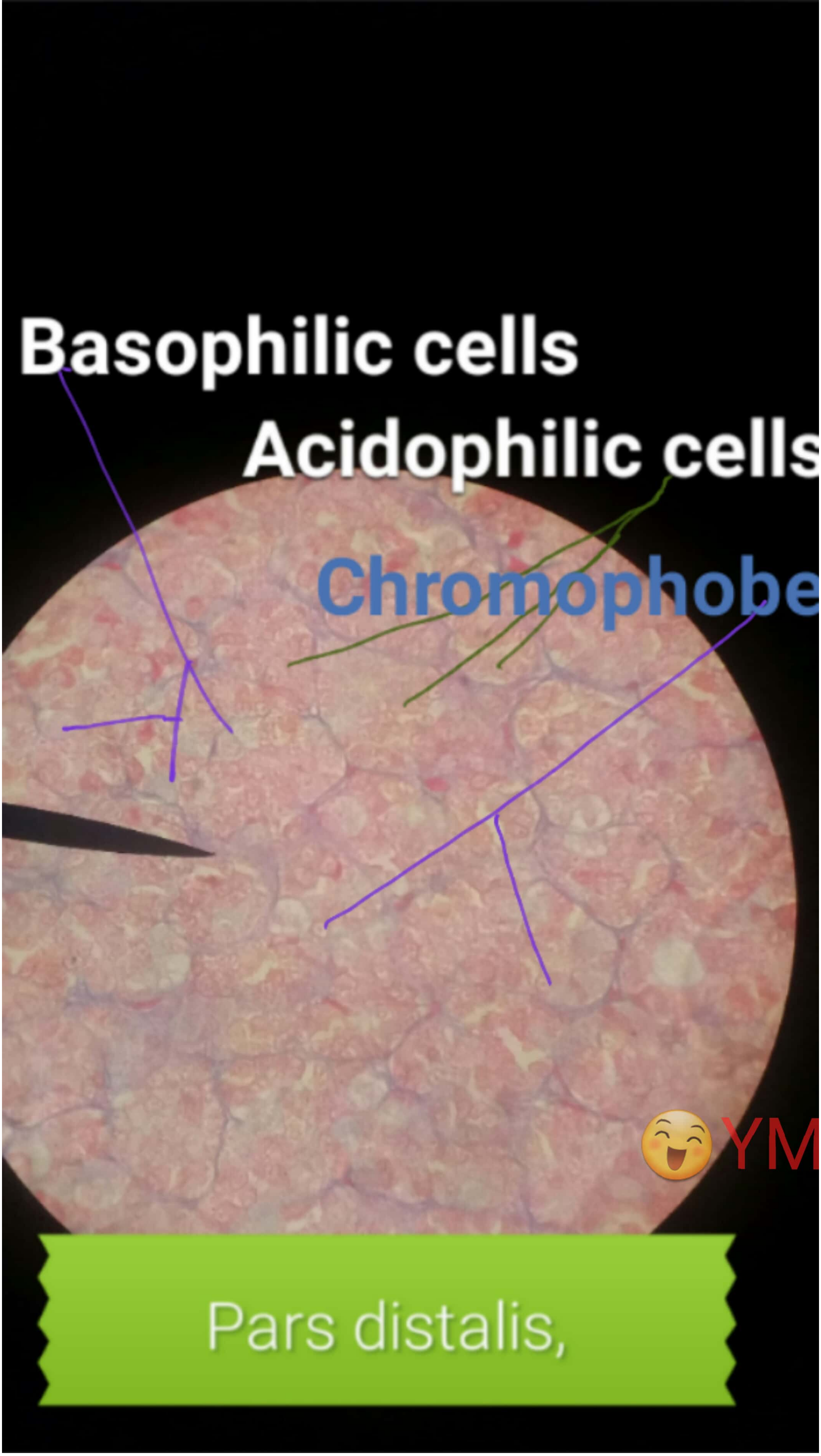

Acidophilic cell
Chromophobes
B.V
Basiphilic cell
YMSH

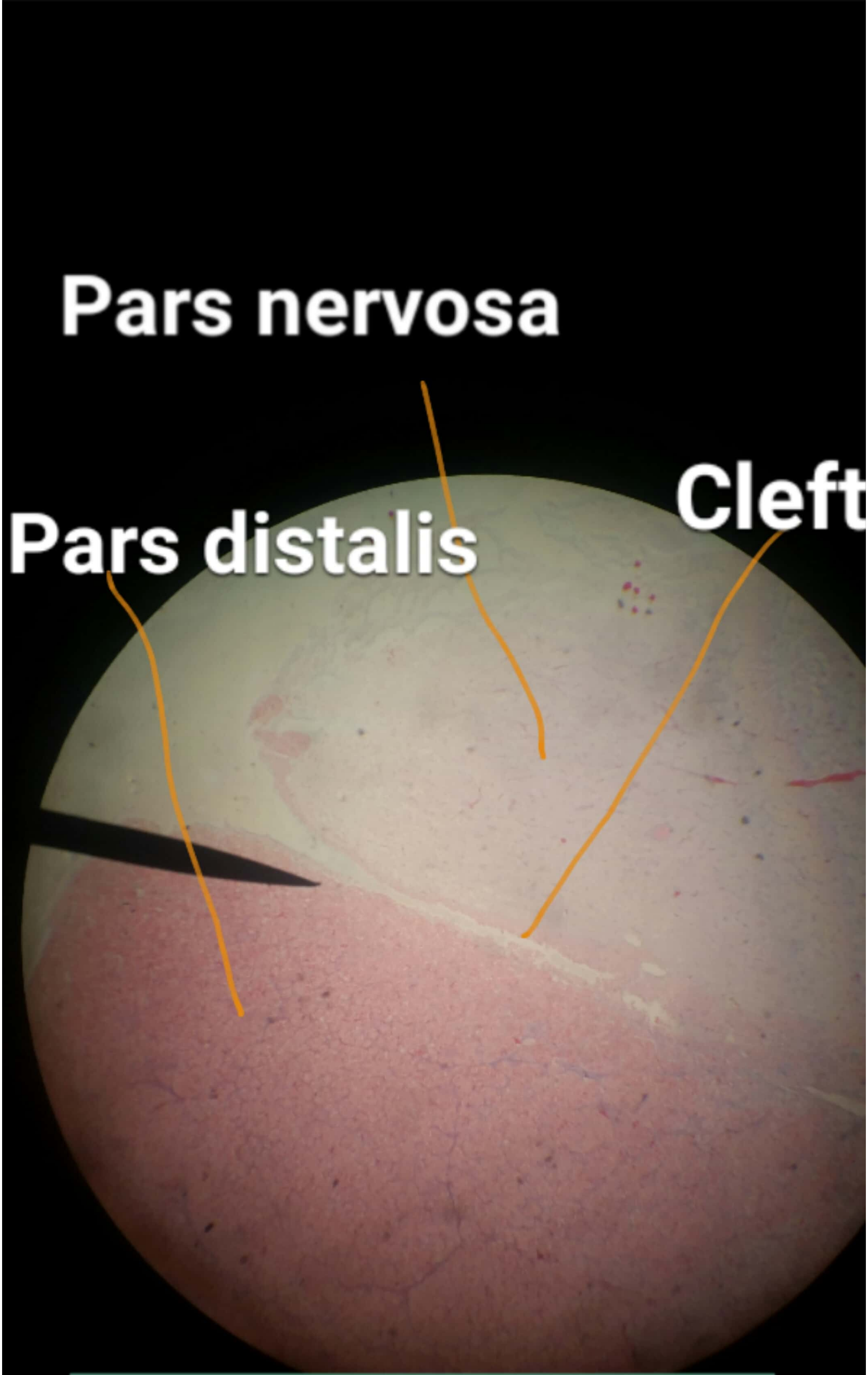

Pituicyte
Herning bodie
Para nervosa

Thyroid gland

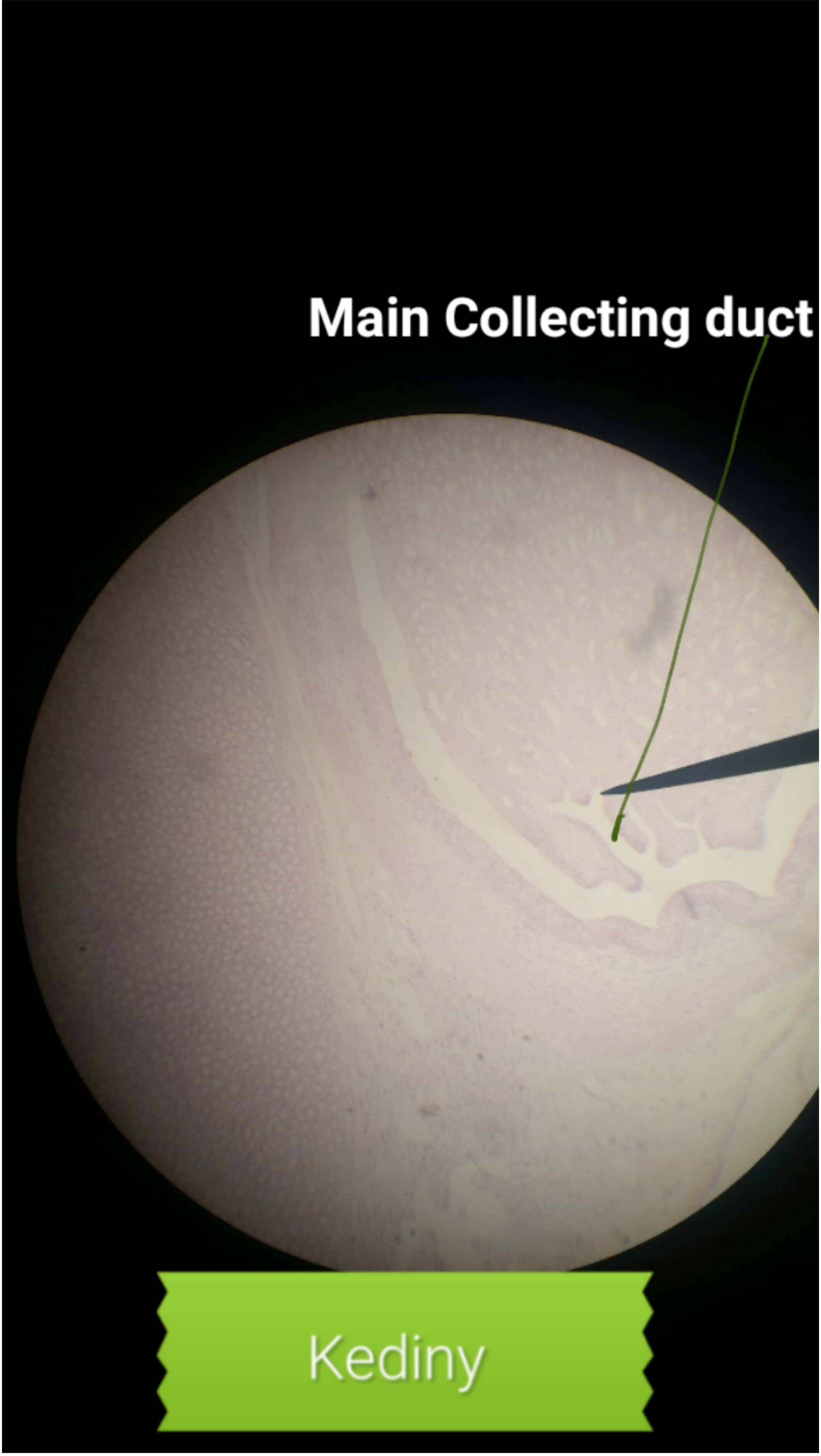

Follicular cells
Colloid

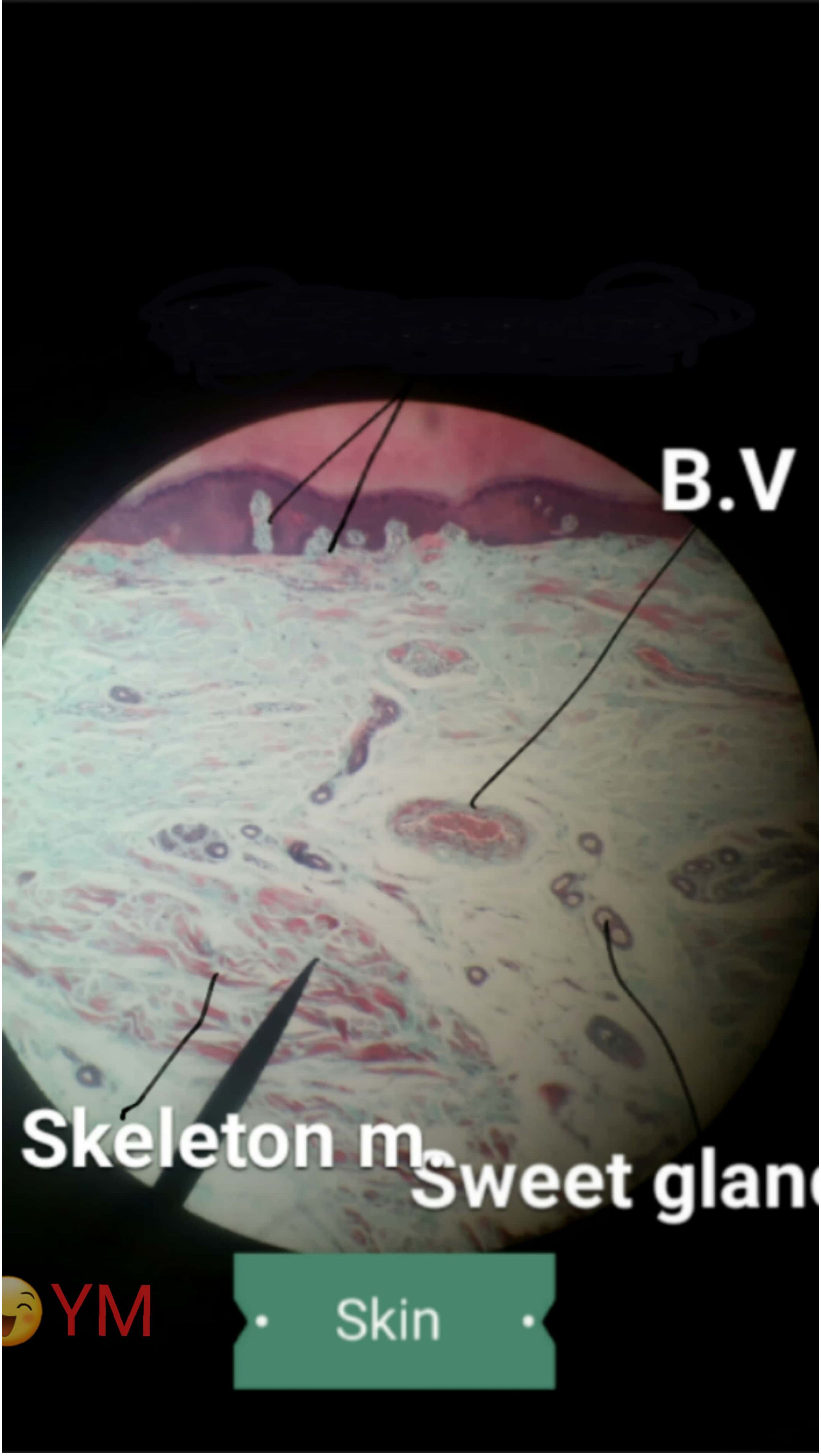

Parafollicuar cell

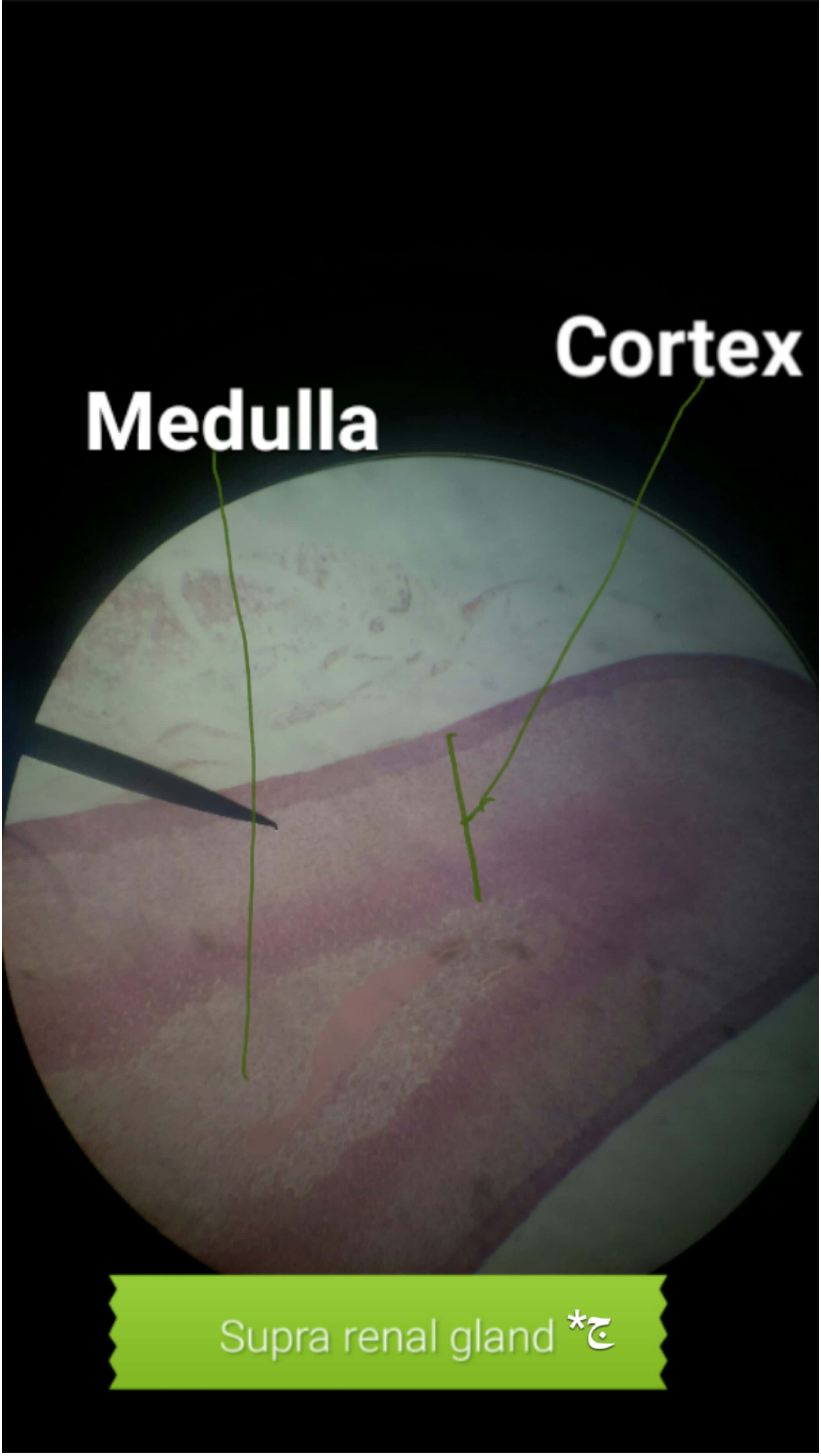

Basophilic cells
Acidophilic cells
Chromophobe
YM
Pars distalis,

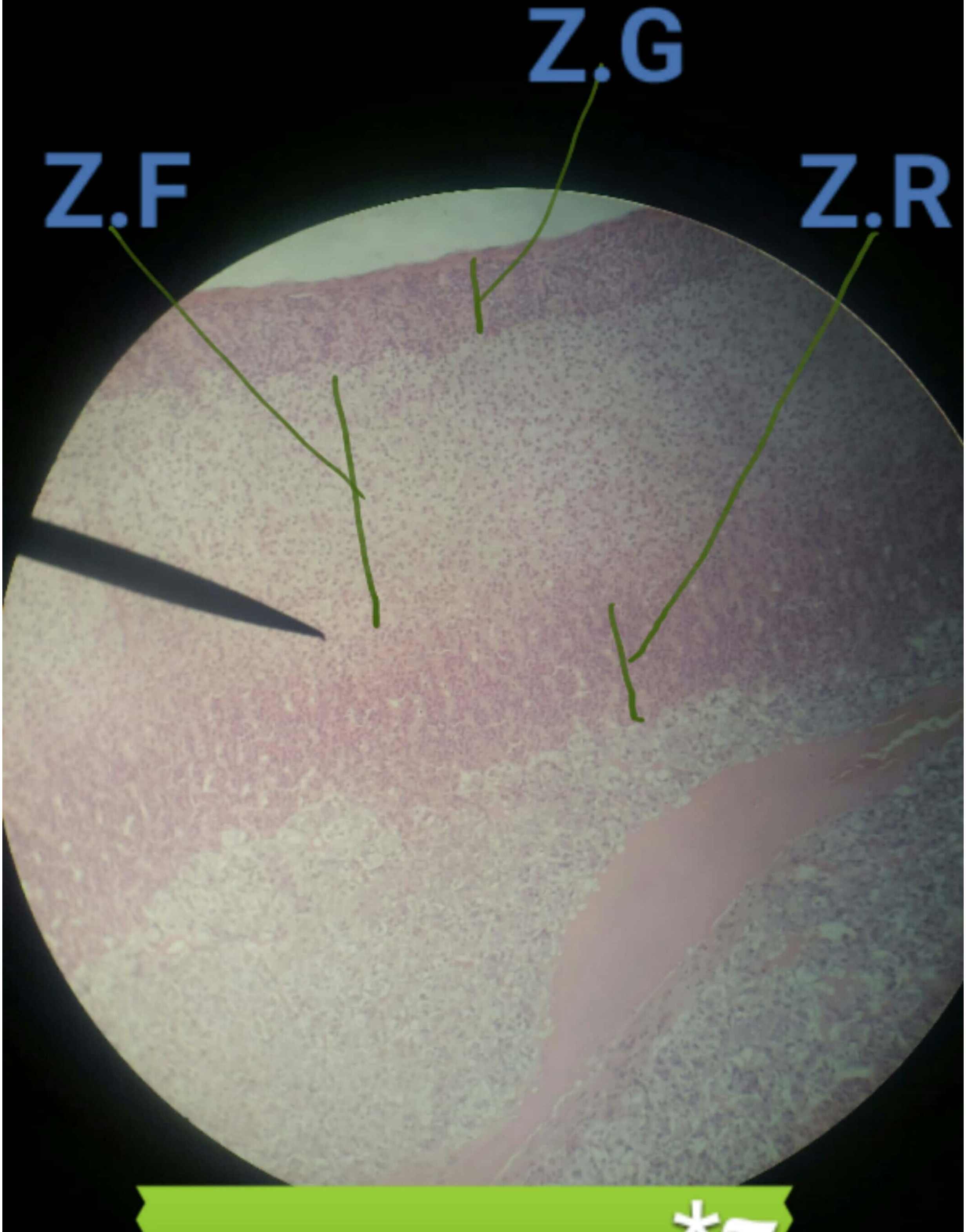

Pars nervosa
Cleft
Pars distalis

Pituitary gland

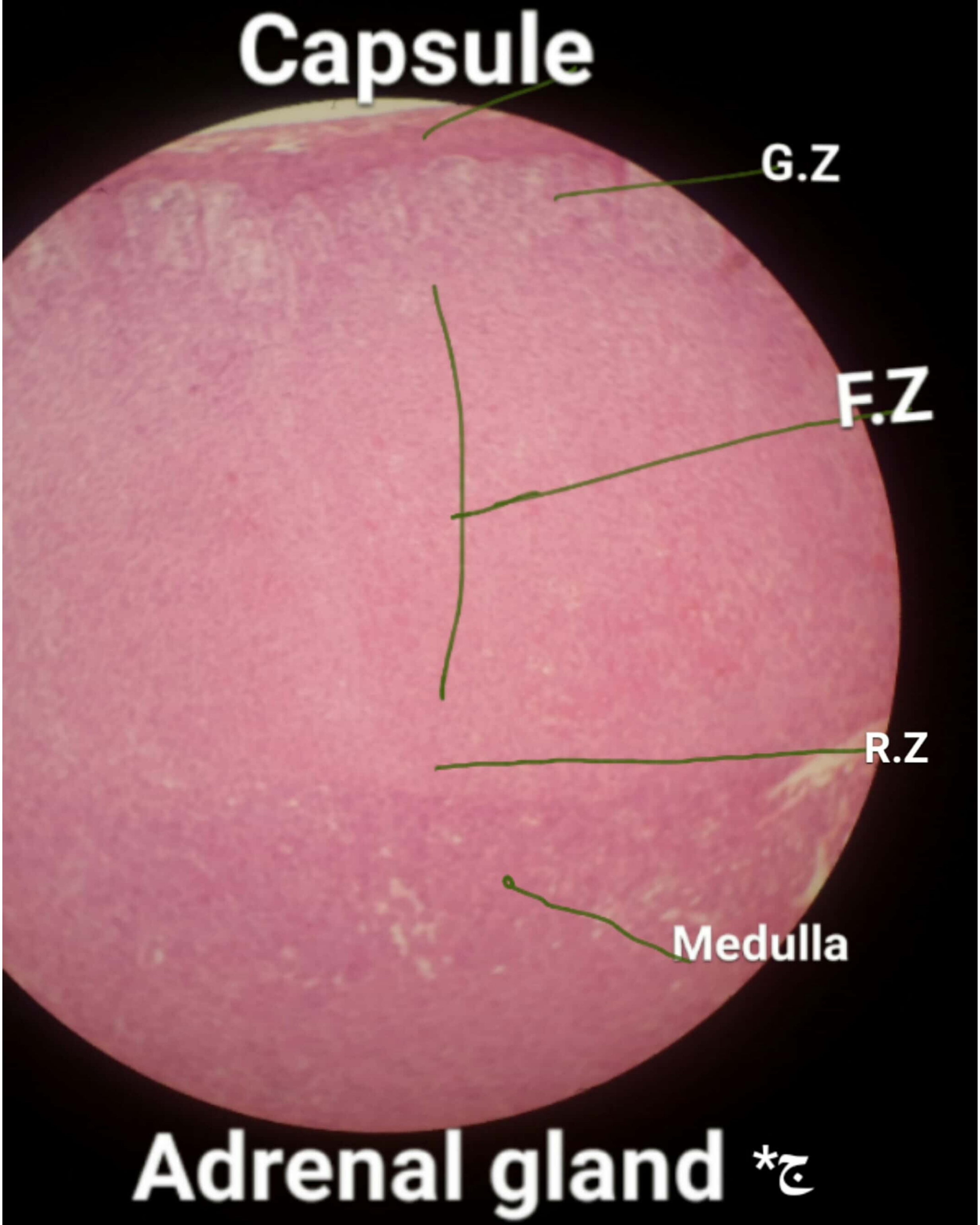

Main Collecting duct
Kediny


[redacted]
B.V
Skeleton m.
Sweet glan
YM
Skin


Medulla
Cortex
Supra renal gland ج*

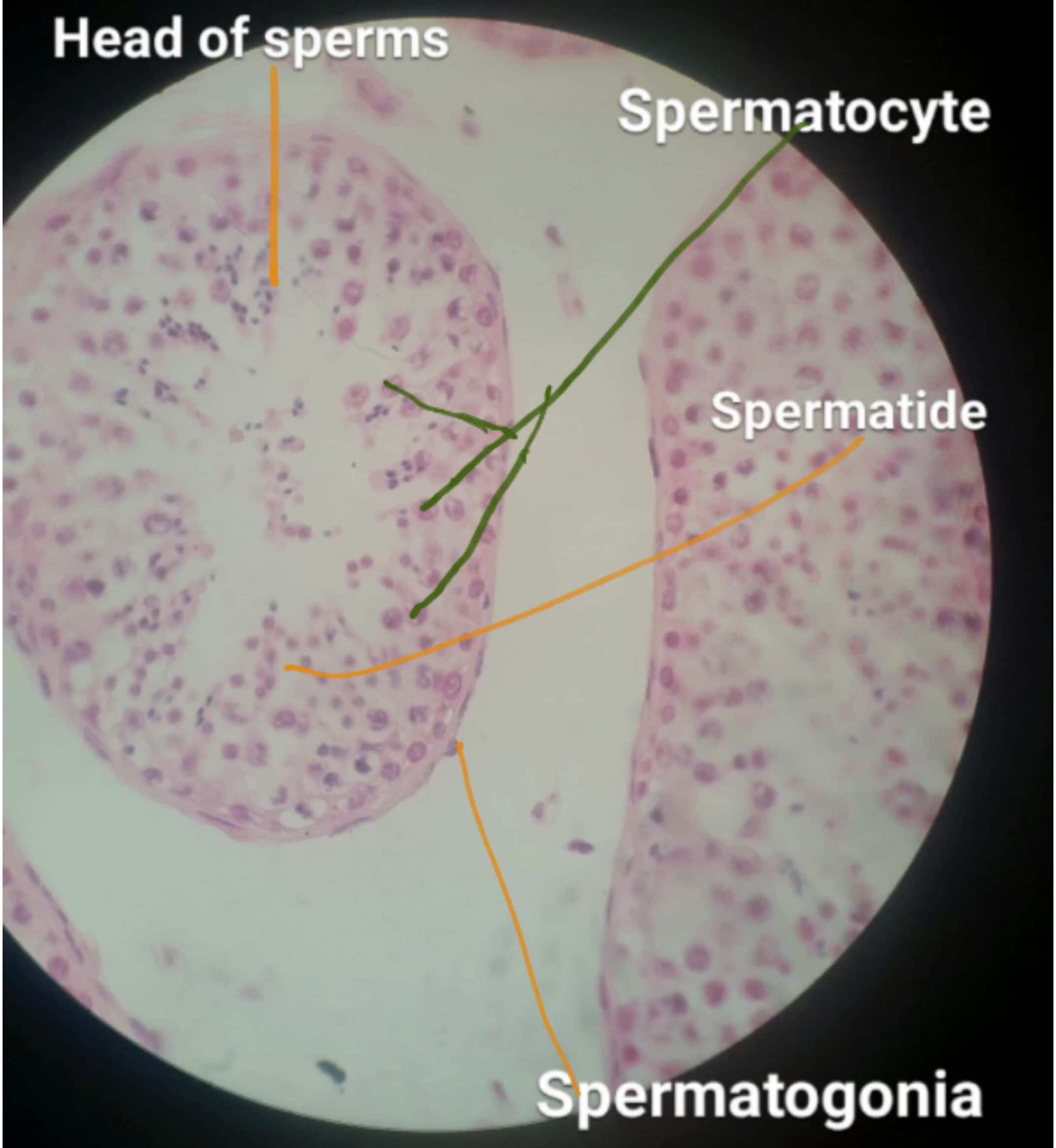


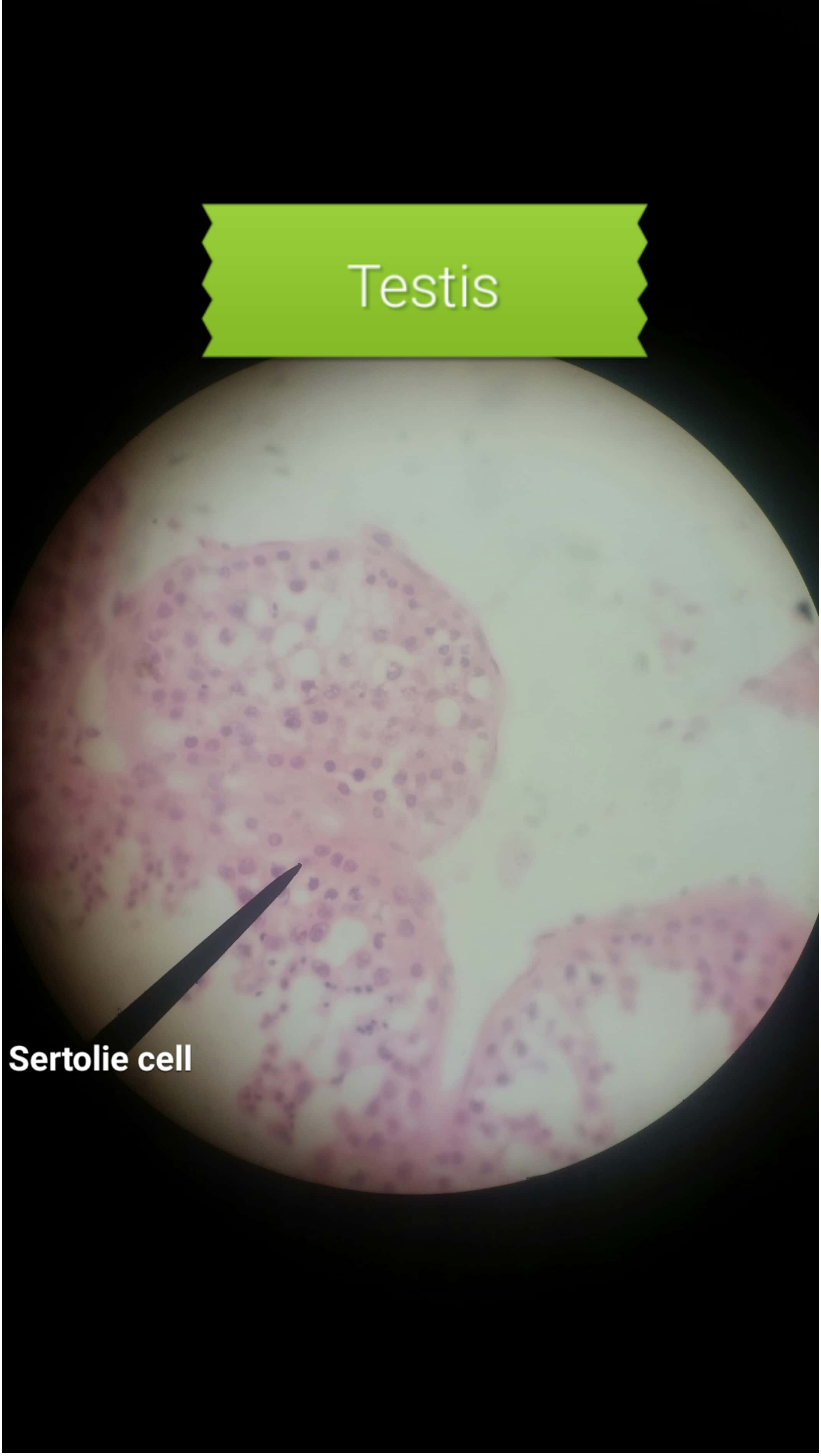
Supra renal gland ج*


Capsule
G.Z
F.Z
R.Z
Medulla

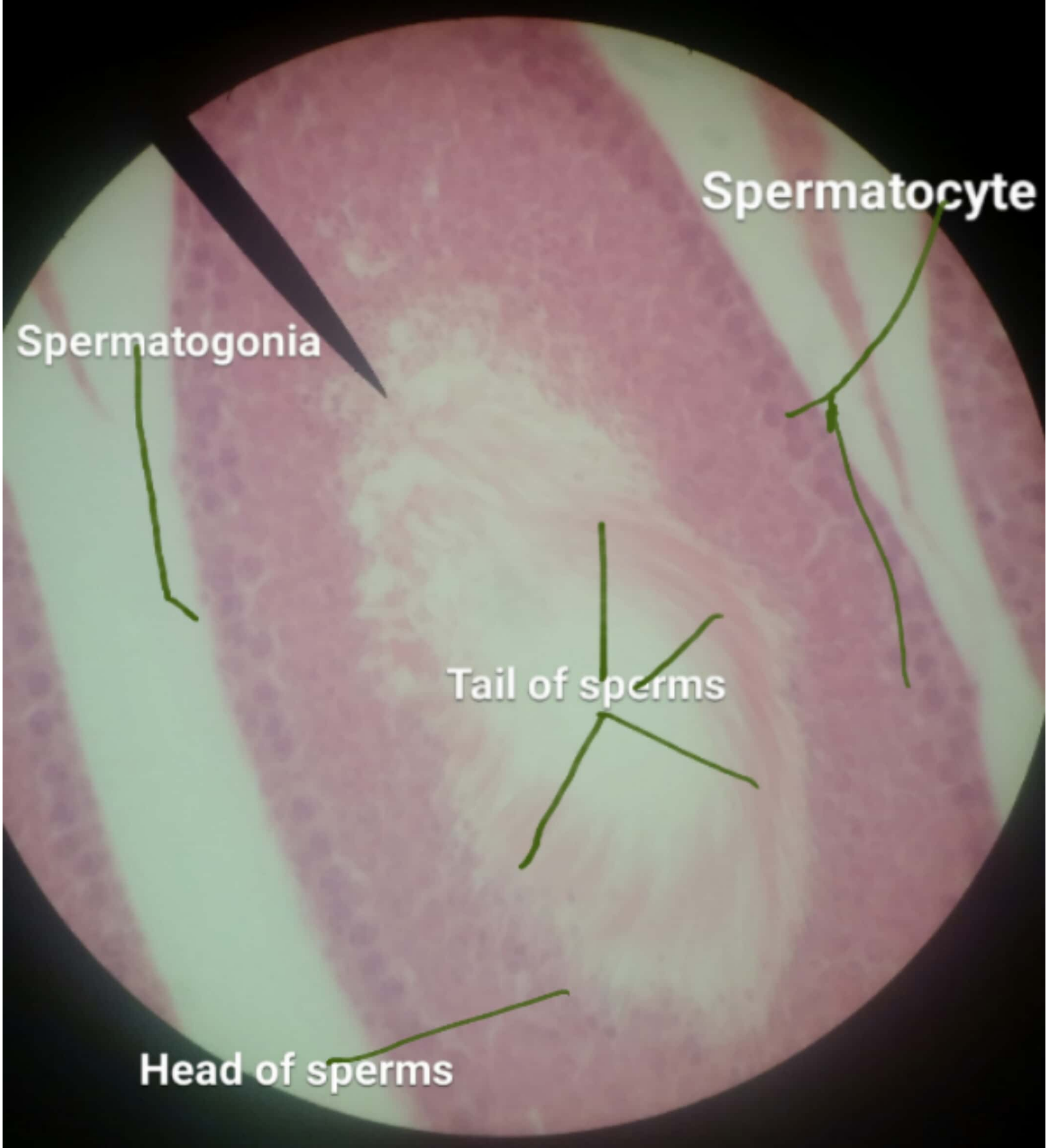
Adrenal gland *ج

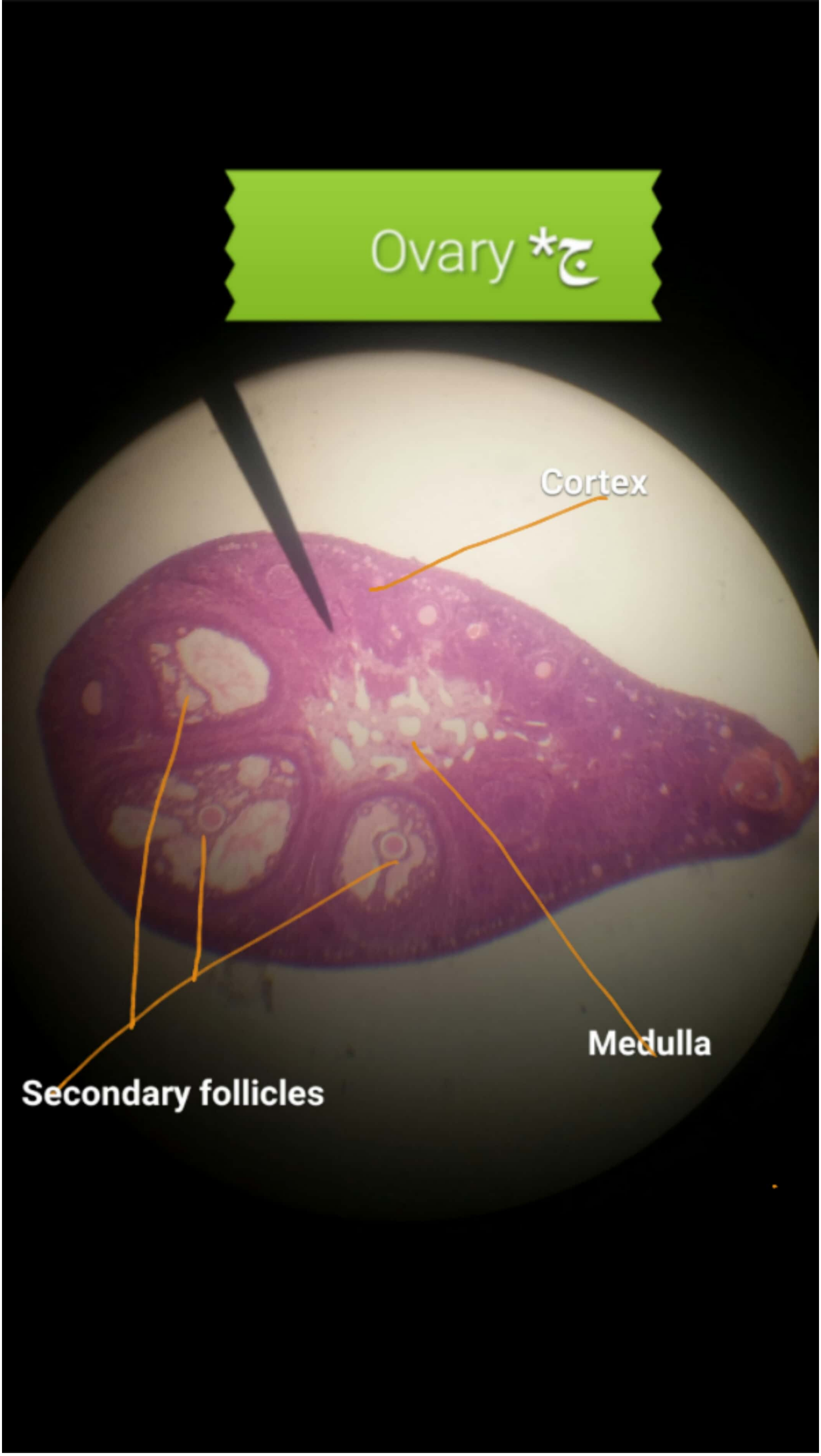
Testis


Head of sperms
Spermatocyte
Spermatide
Spermatogonia


Testis
Sertolie cell

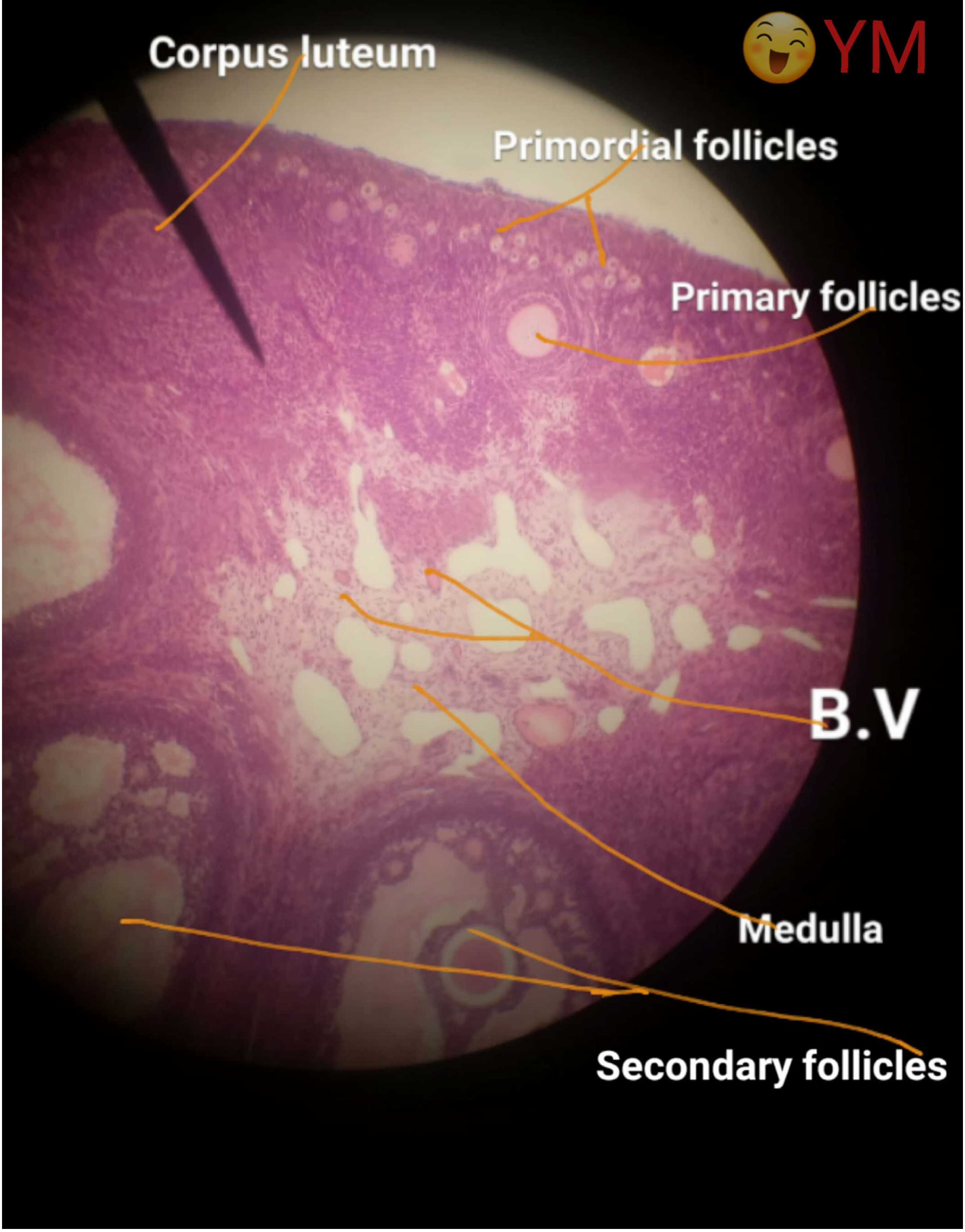
Testis ج*


Spermatocyte
Spermatogonia
Tail of sperms
Head of sperms

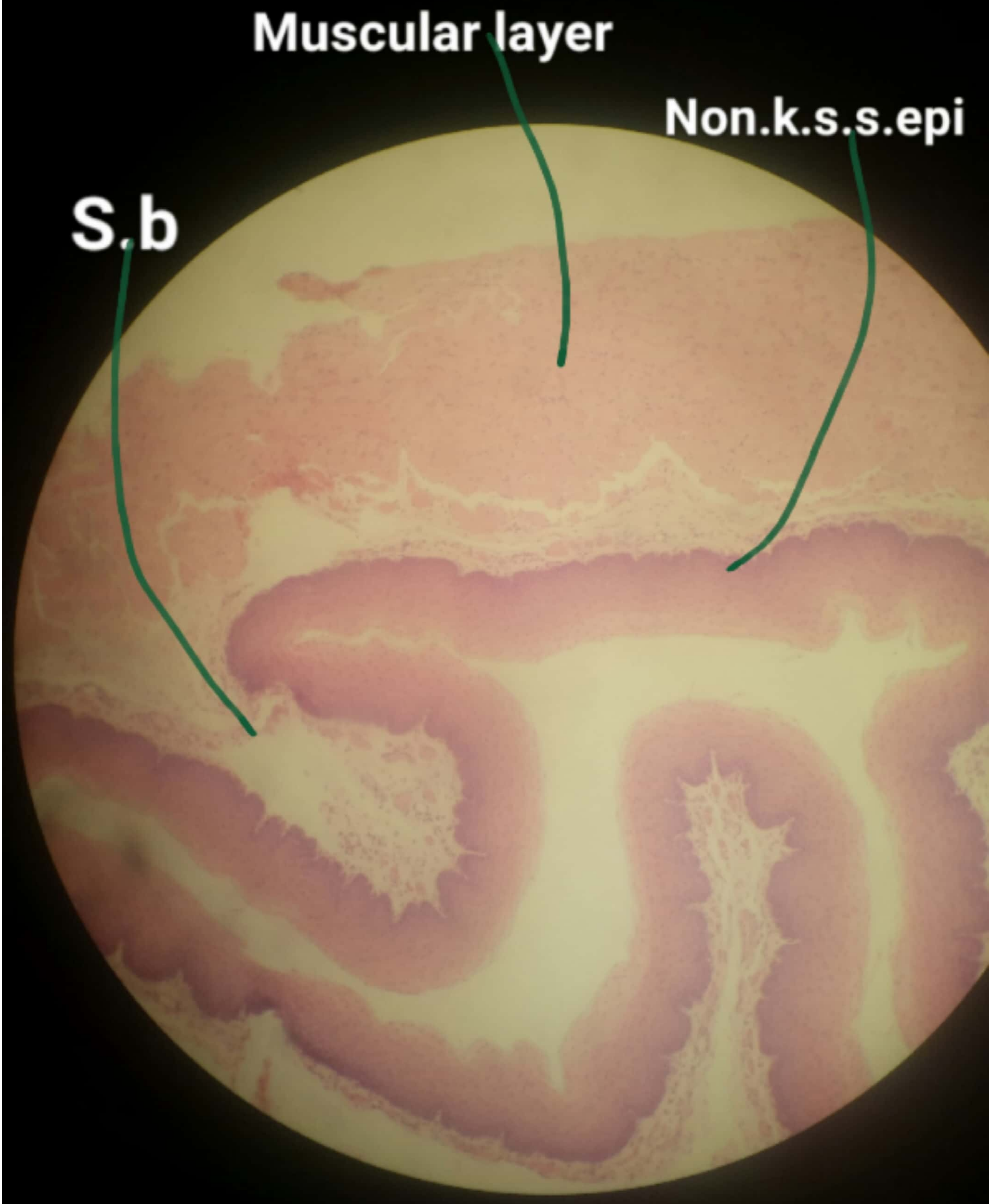

Ovary *ج
Cortex
Medulla
Secondary follicles

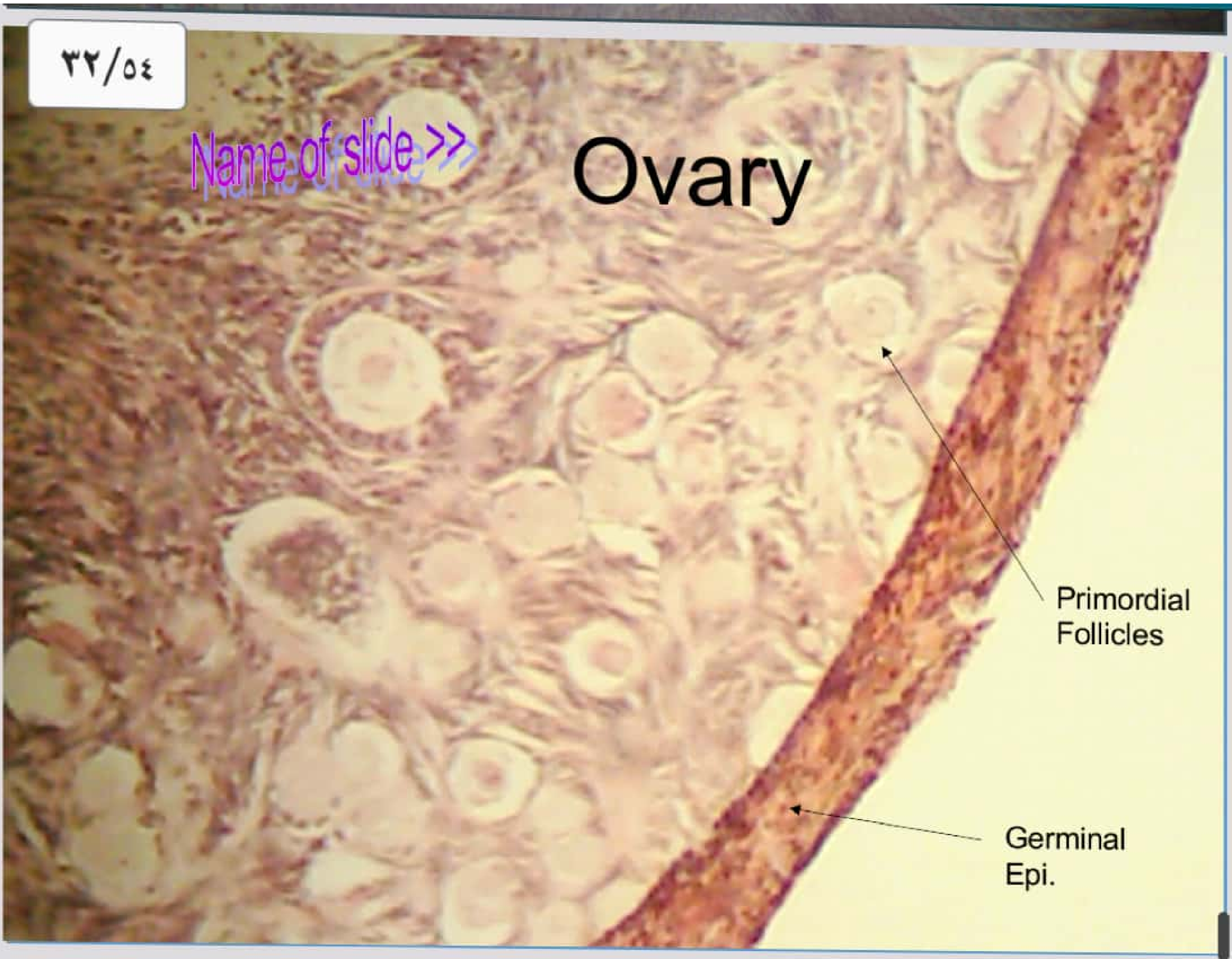
Ovary

YM


Corpus luteum
Primordial follicles
Primary follicles
B.V
Medulla
Secondary follicles

Vagina ج*


Muscular layer
Non.k.s.s.epi
S.b

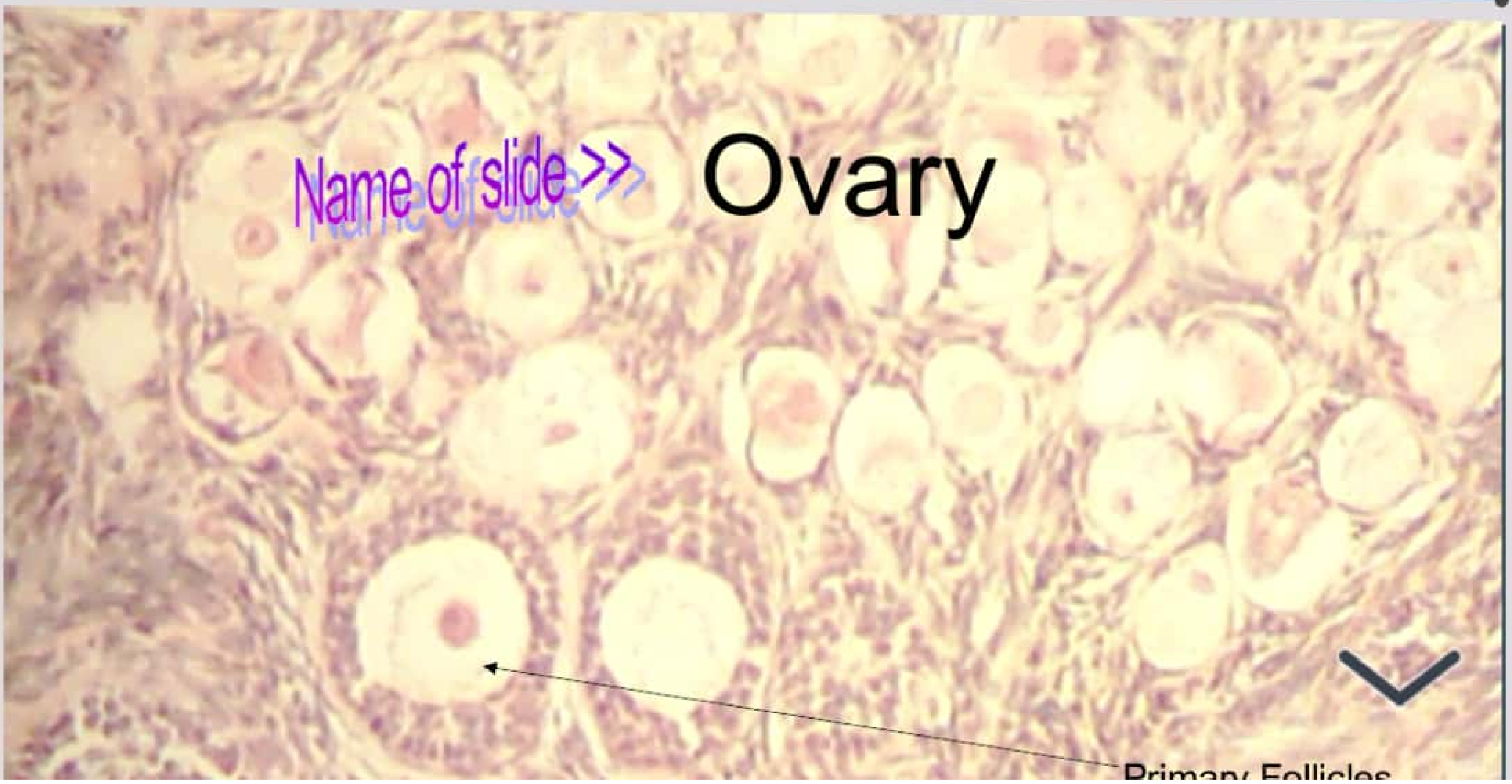


Name of slide >>

Ovary

Primordial Follicles

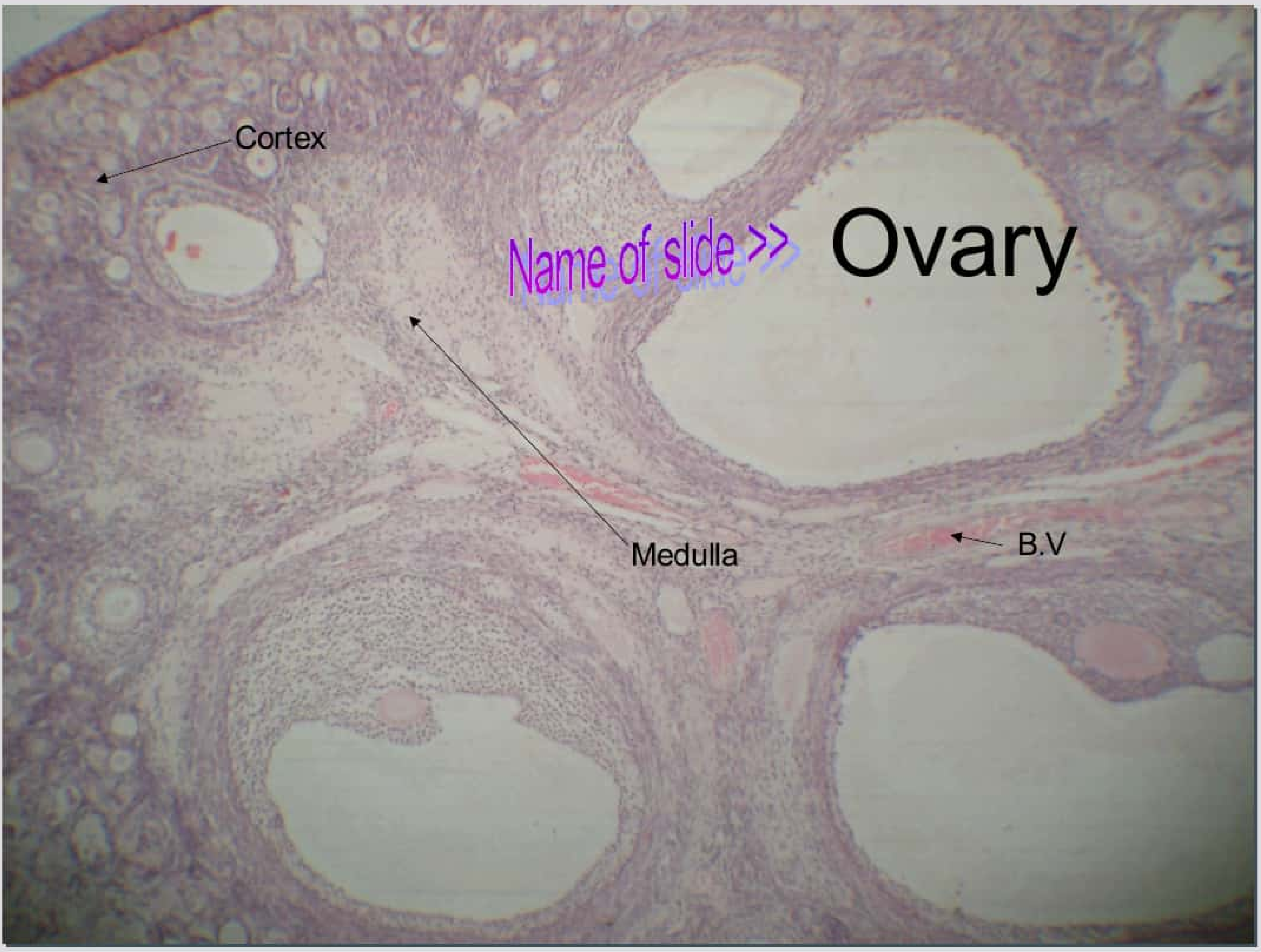
Germinal Epi.

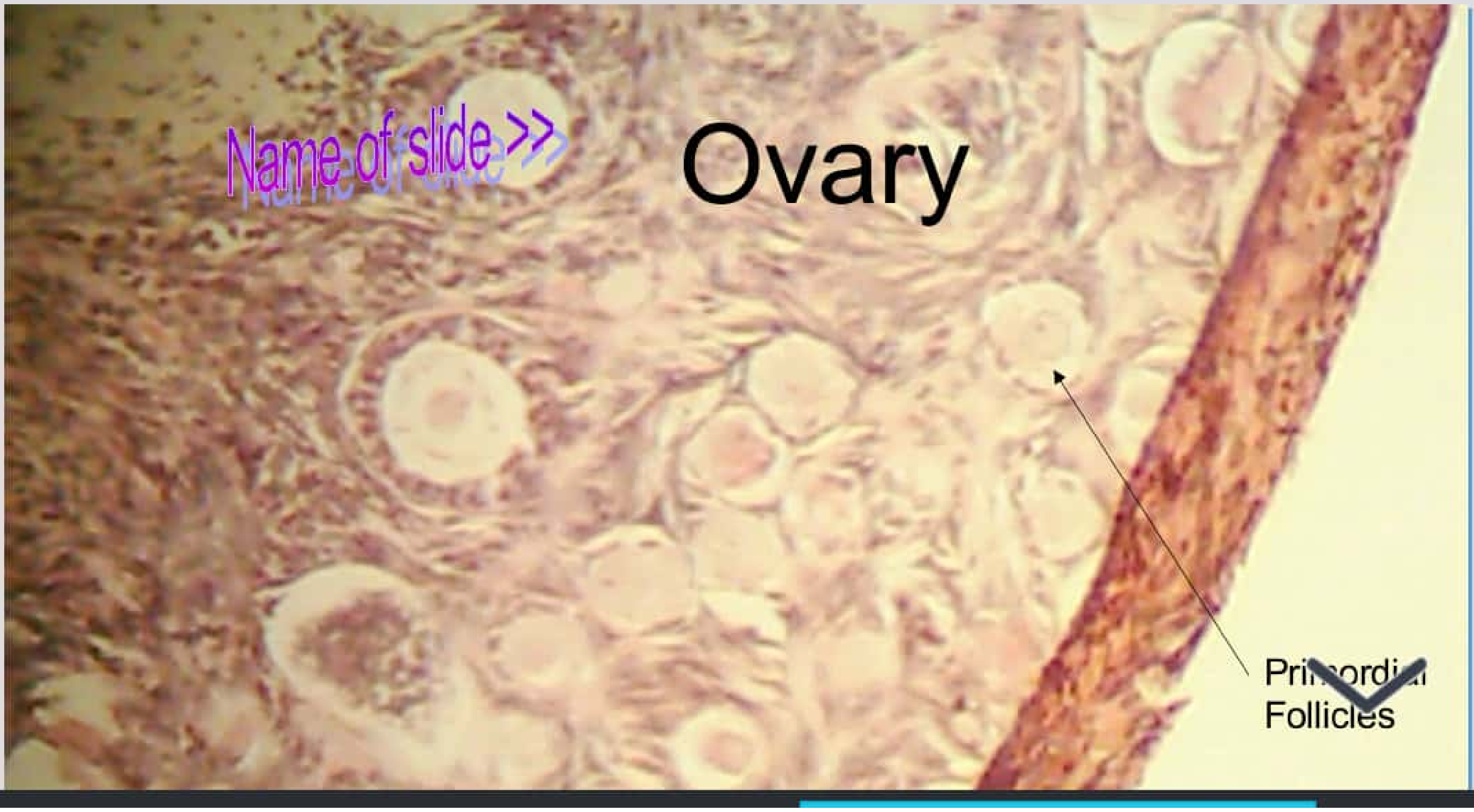


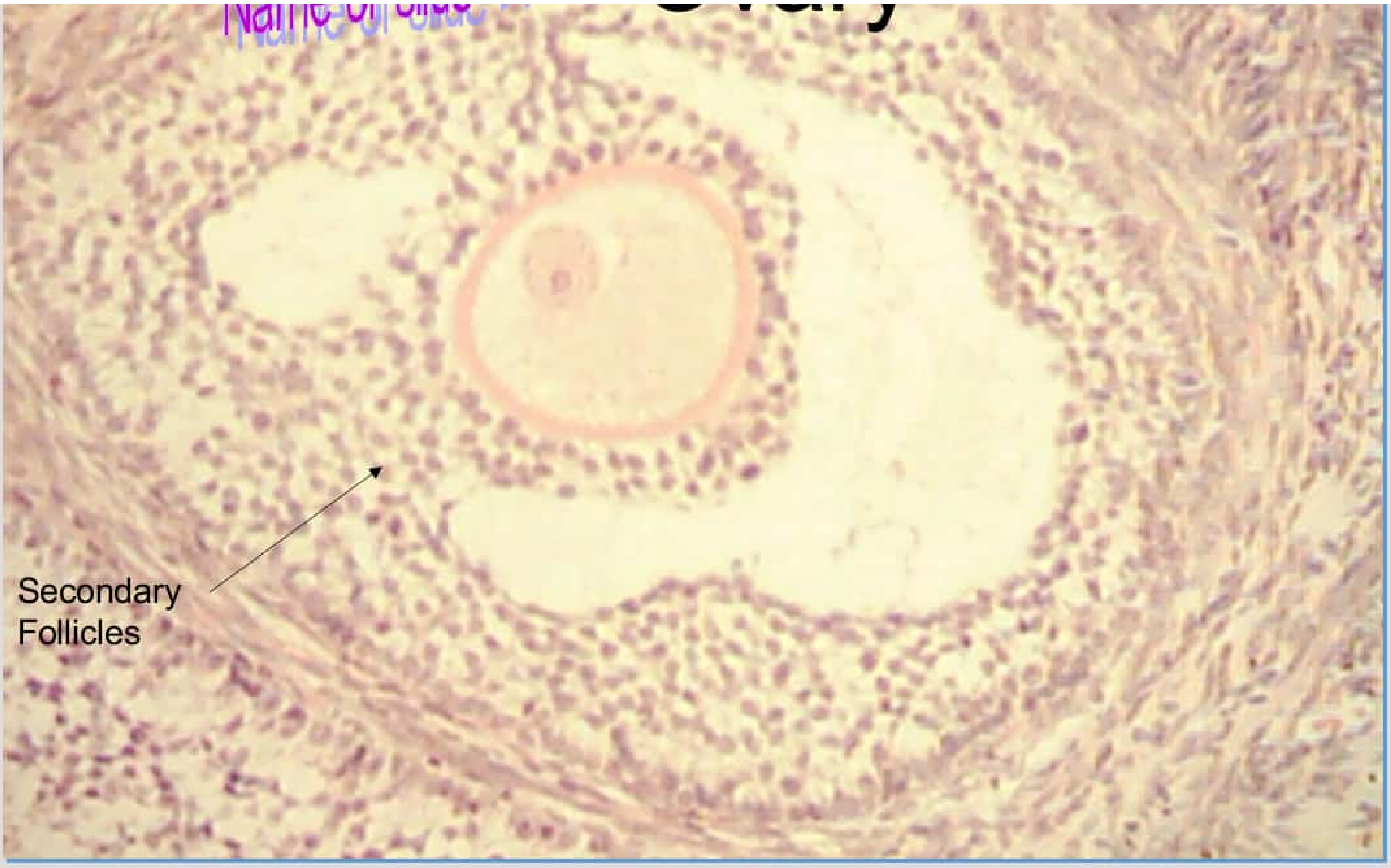
Name of slide >>

Ovary

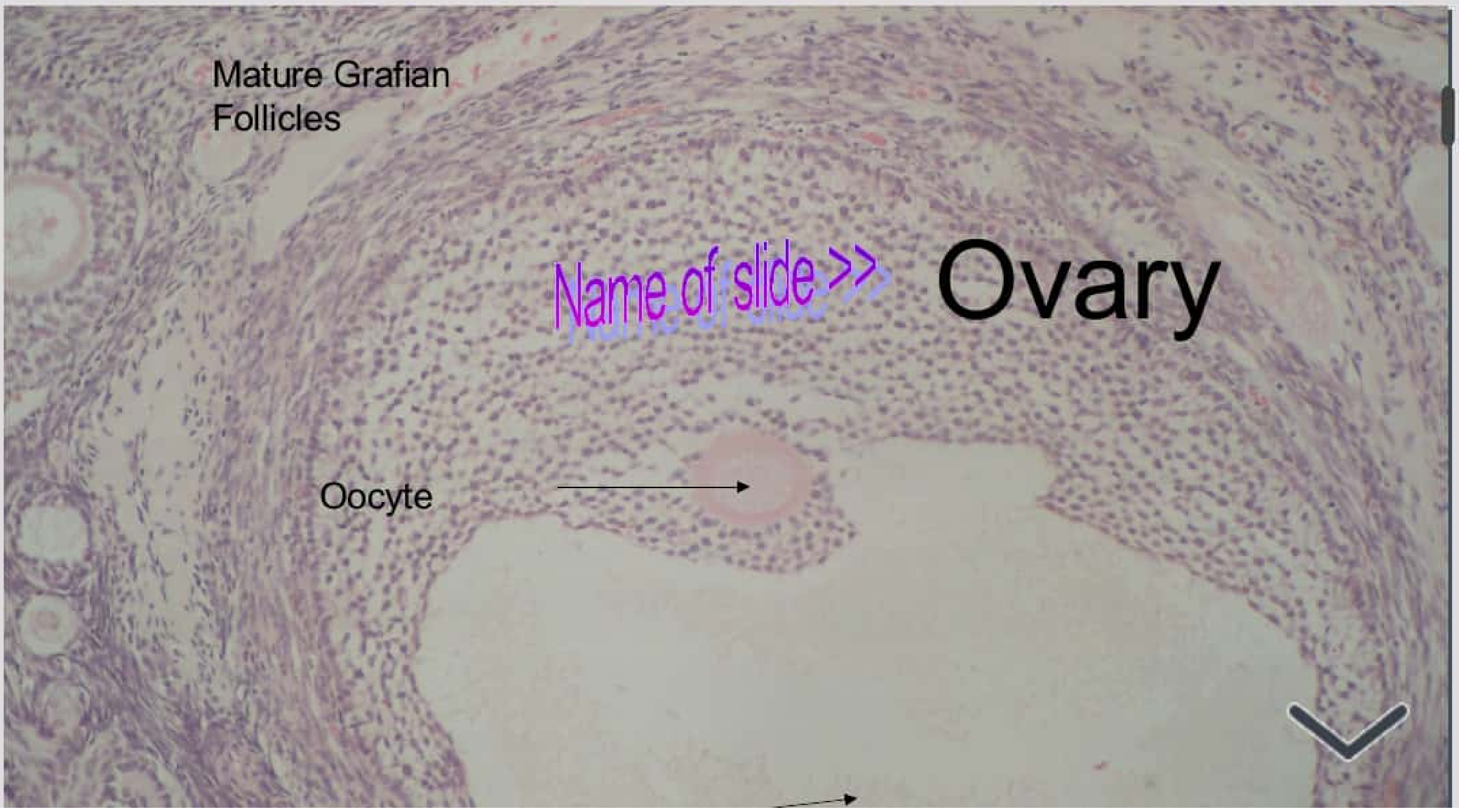
Primary Follicles


Cortex
Name of slide >> Ovary
Medulla
B.V


Name of slide >> Ovary
Primordial Follicles



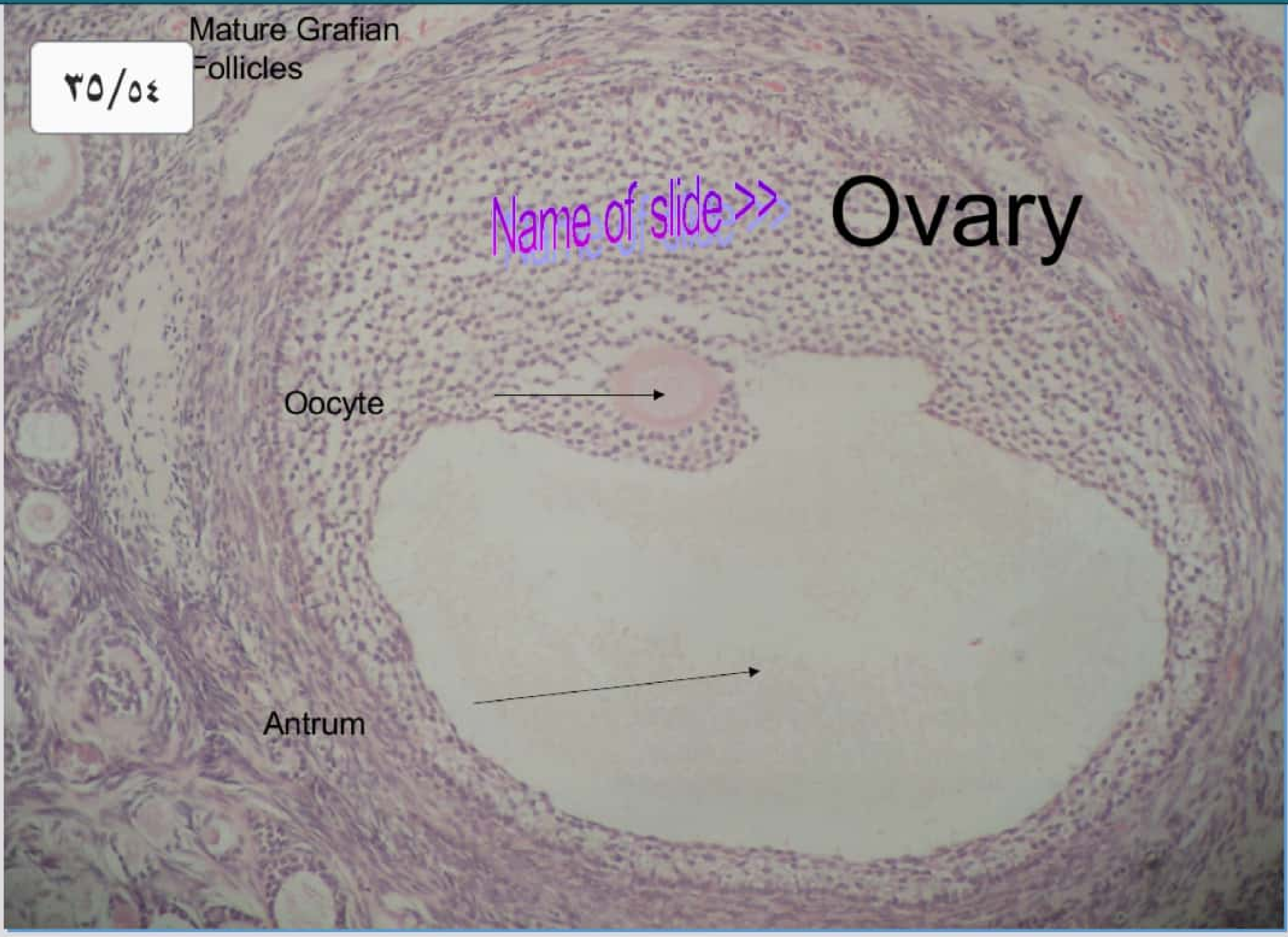
Secondary Follicles

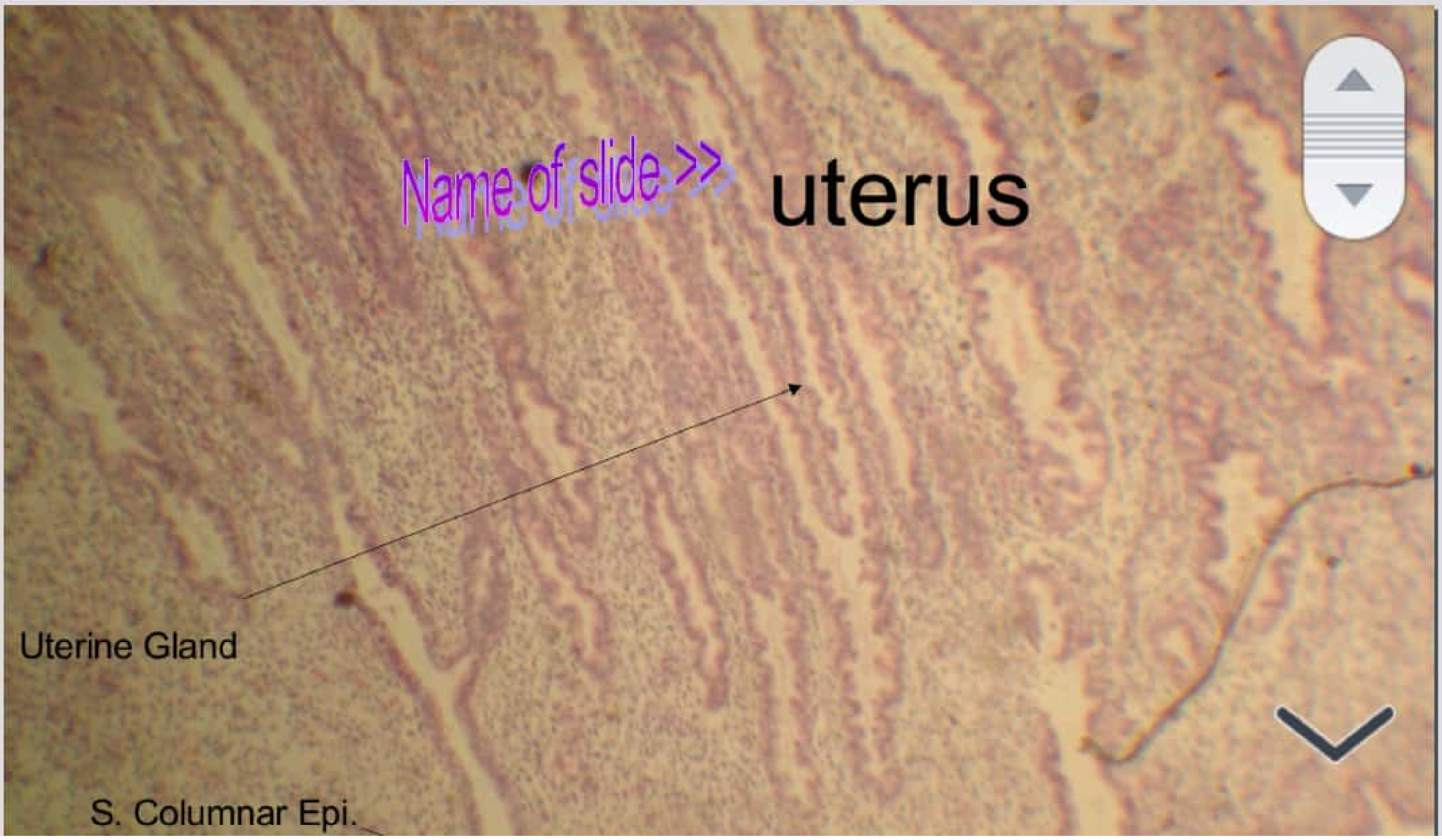


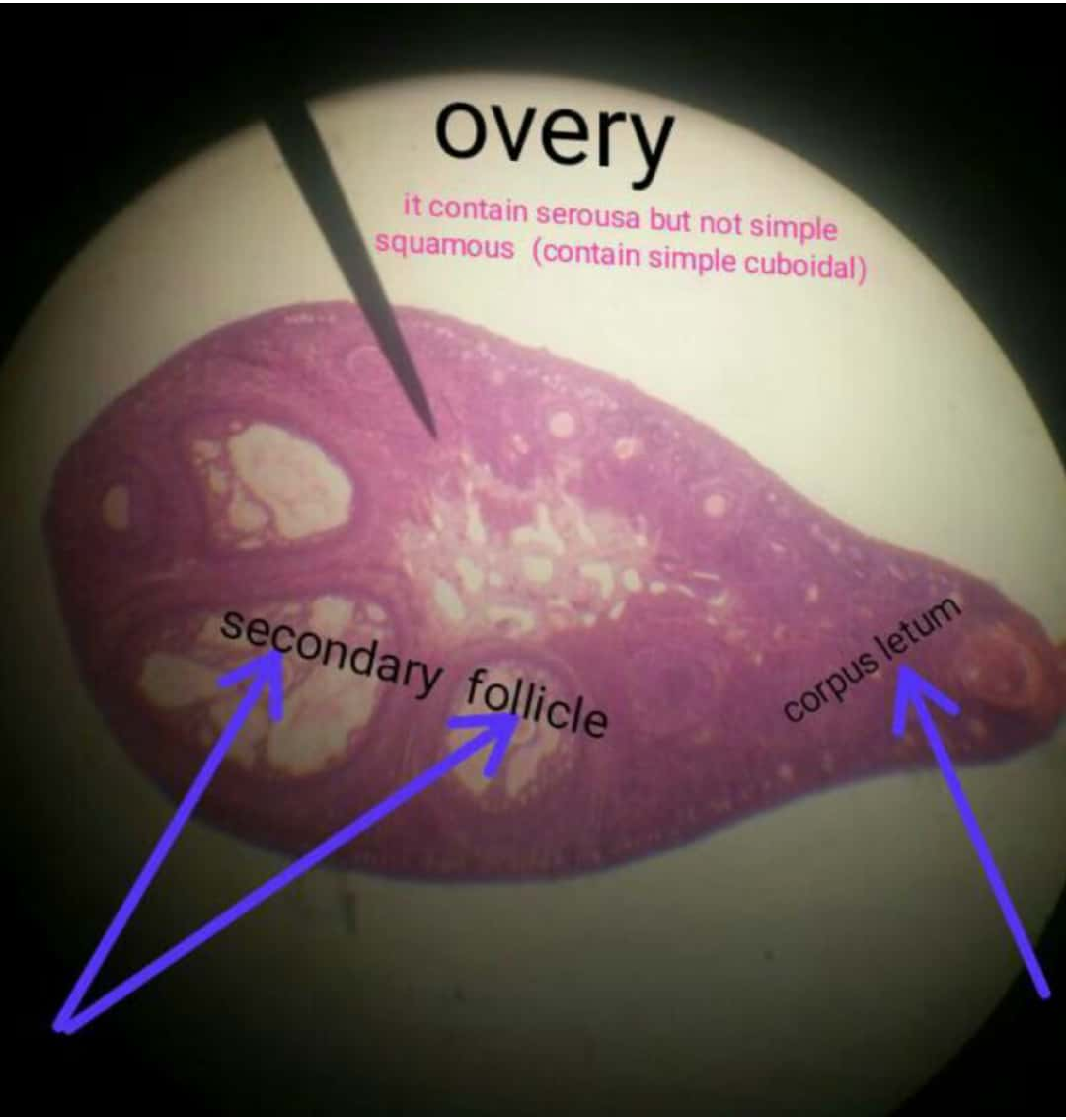
Mature Grafian Follicles

Name of slide>> Ovary

Oocyte


٣٥/٥٤
Mature Grafian Follicles
Name of slide>>
Ovary
Oocyte
Antrum

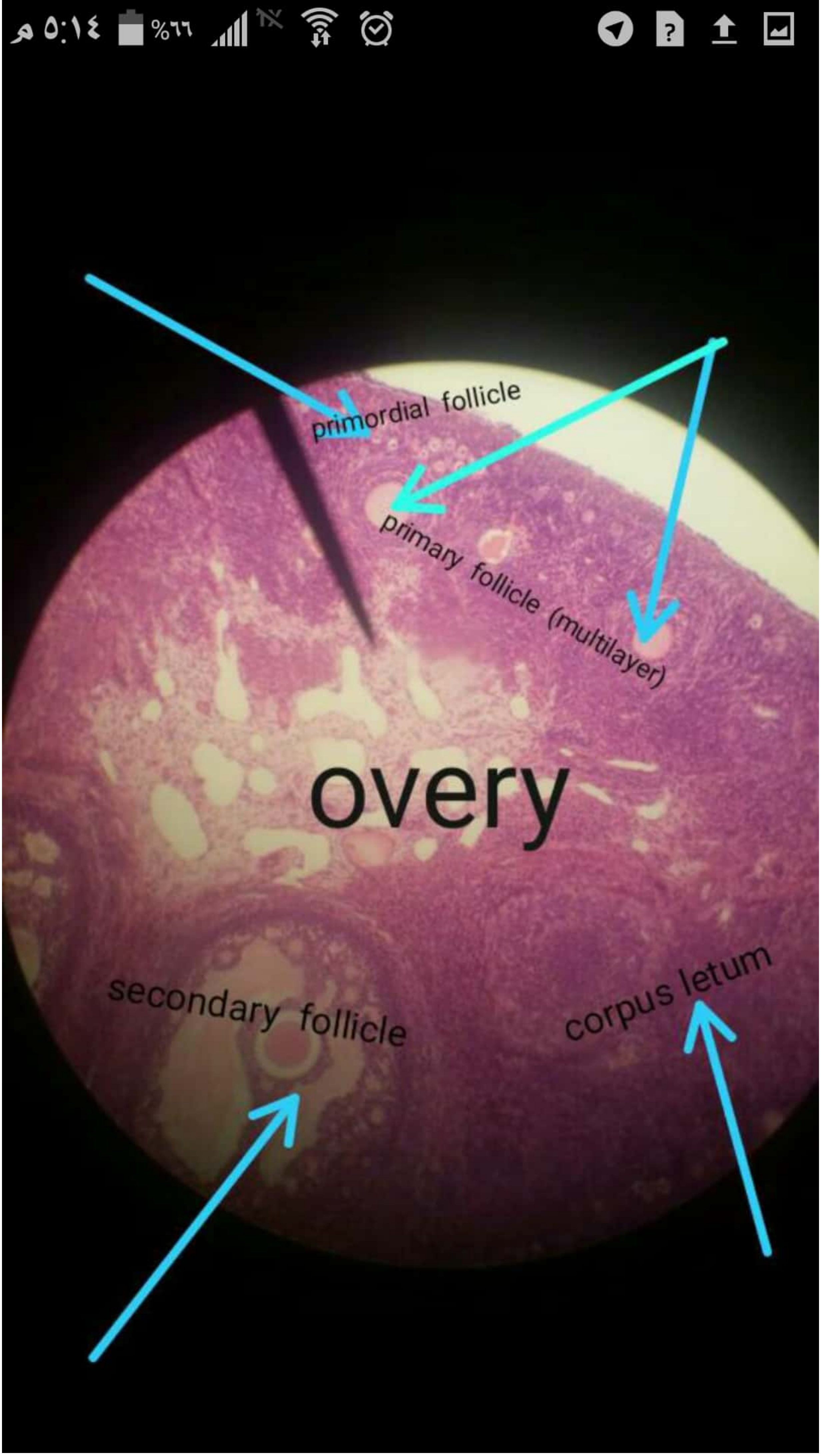

Name of slide>>
uterus
Uterine Gland
S. Columnar Epi.

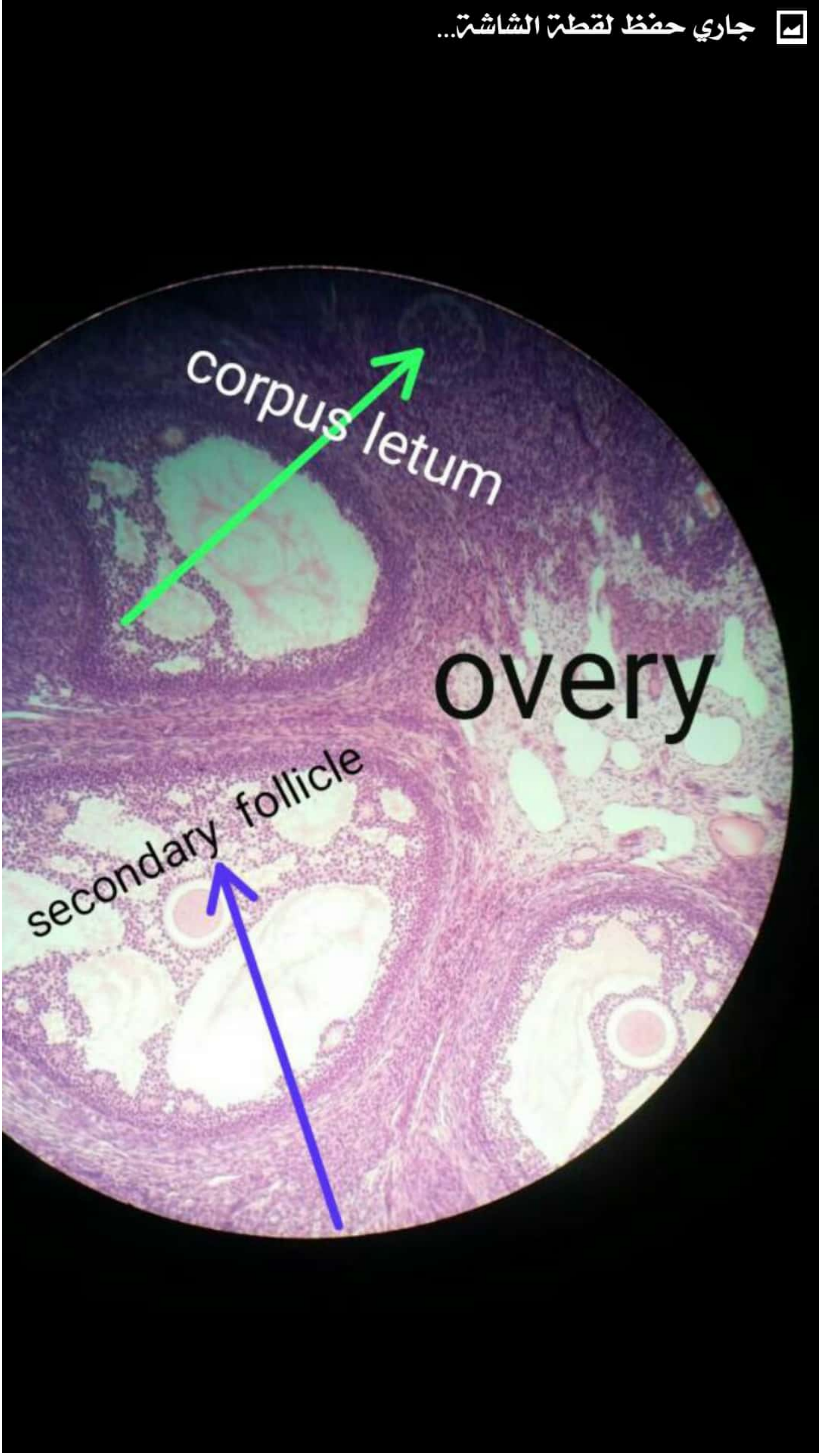


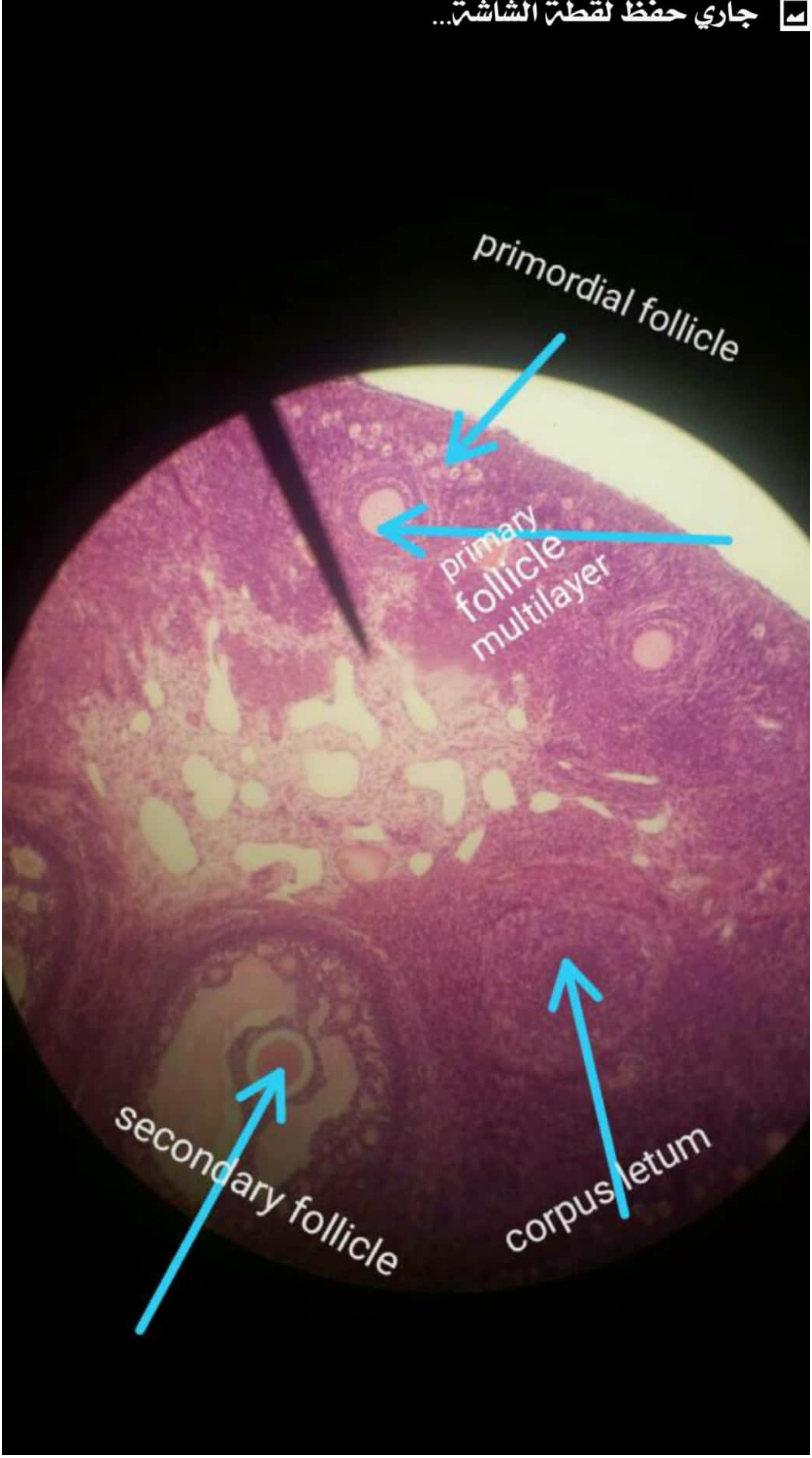
overy

it contain serousa but not simple squamous (contain simple cuboidal)

secondary follicle
corpus letum

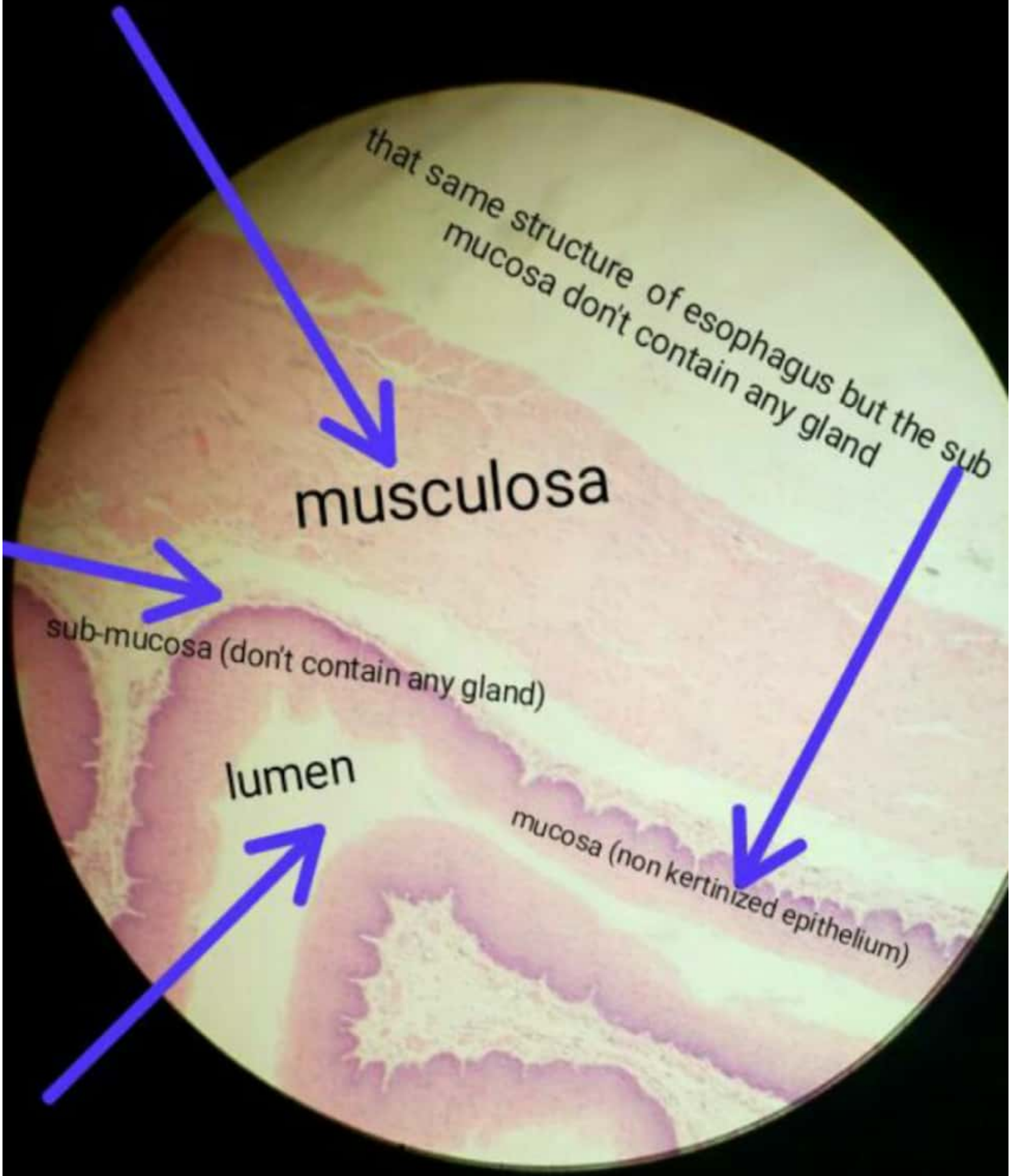

٥:١٤ م
%٦٦
primordial follicle
primary follicle (multilayer)
overy
secondary follicle
corpus letum


جاري حفظ لقطة الشاشة...
corpus letum
overy
secondary follicle

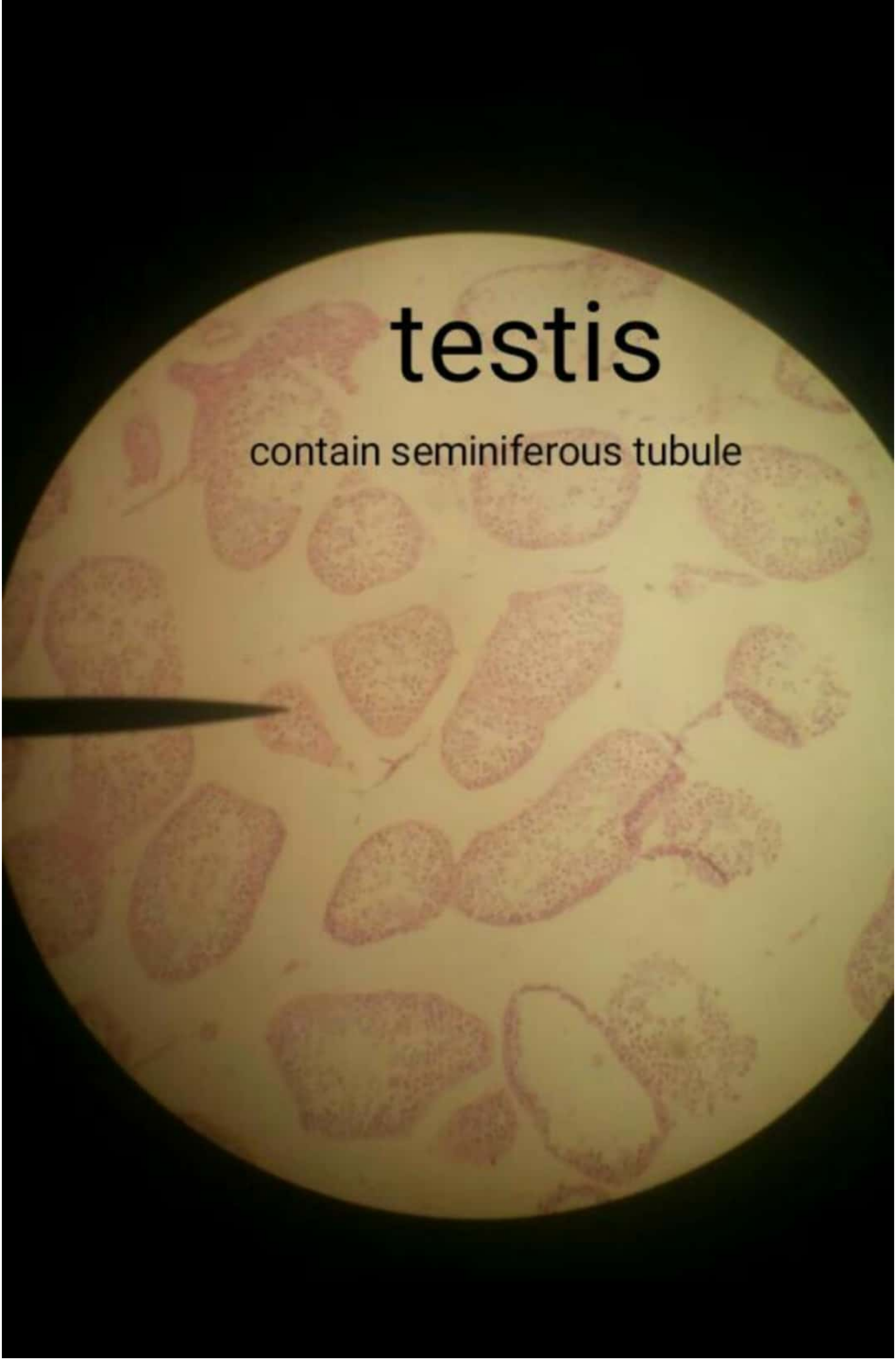


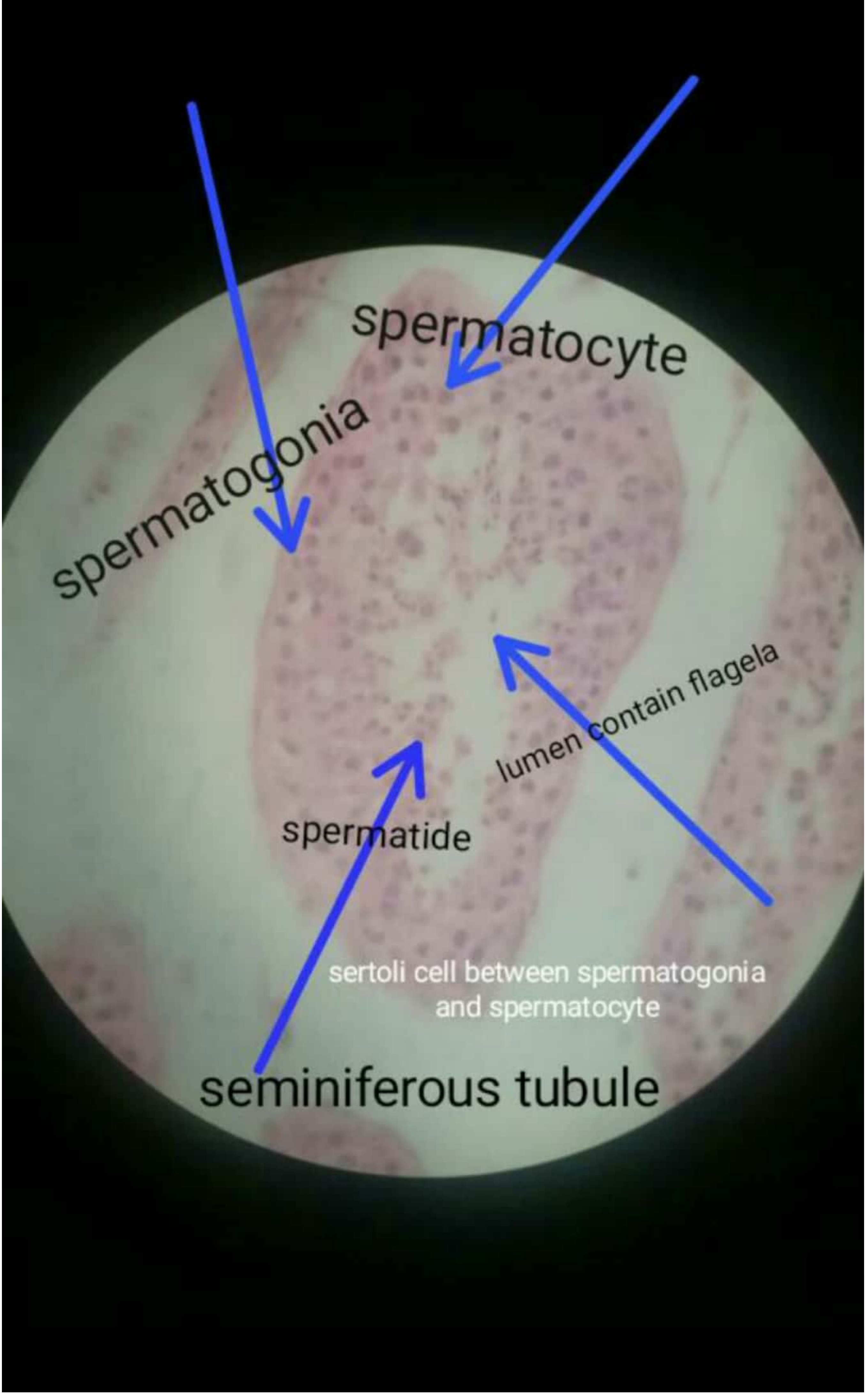
جاري حفظ لقطة الشاشة...

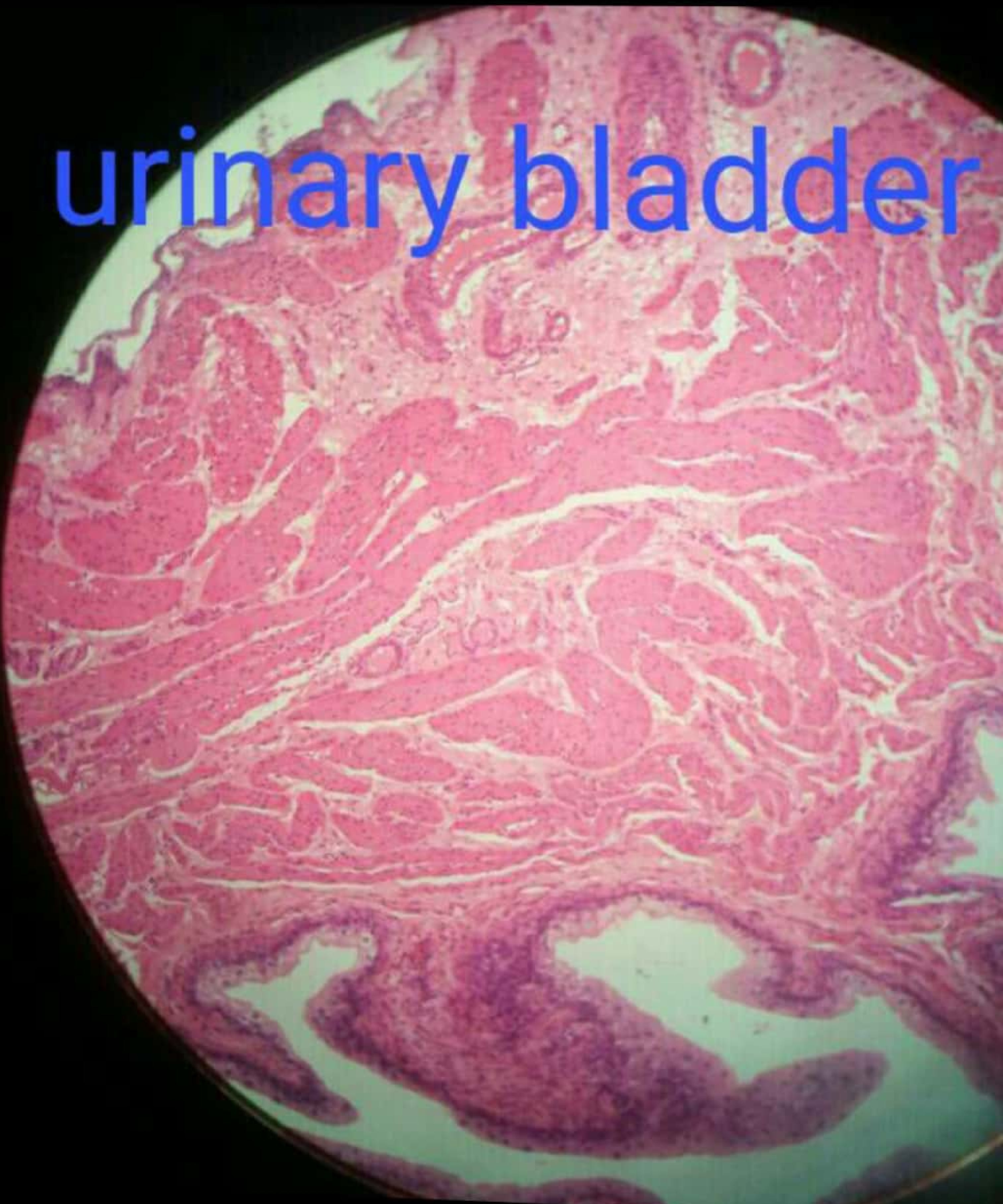
primordial follicle
primary follicle multilayer
secondary follicle
corpus letum

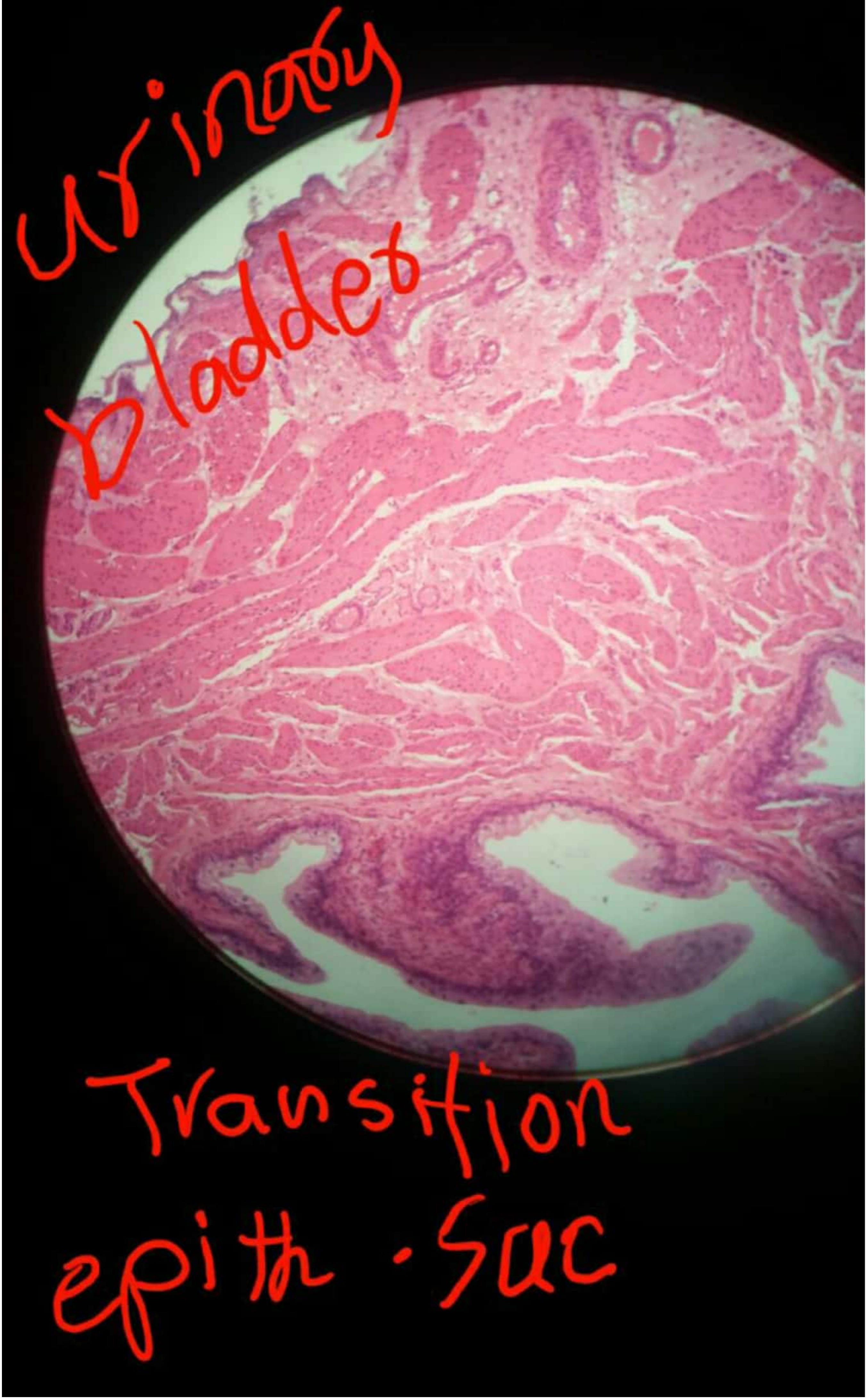

that same structure of esophagus but the sub mucosa don't contain any gland
musculosa
sub-mucosa (don't contain any gland)
lumen
mucosa (non kertinized epithelium)

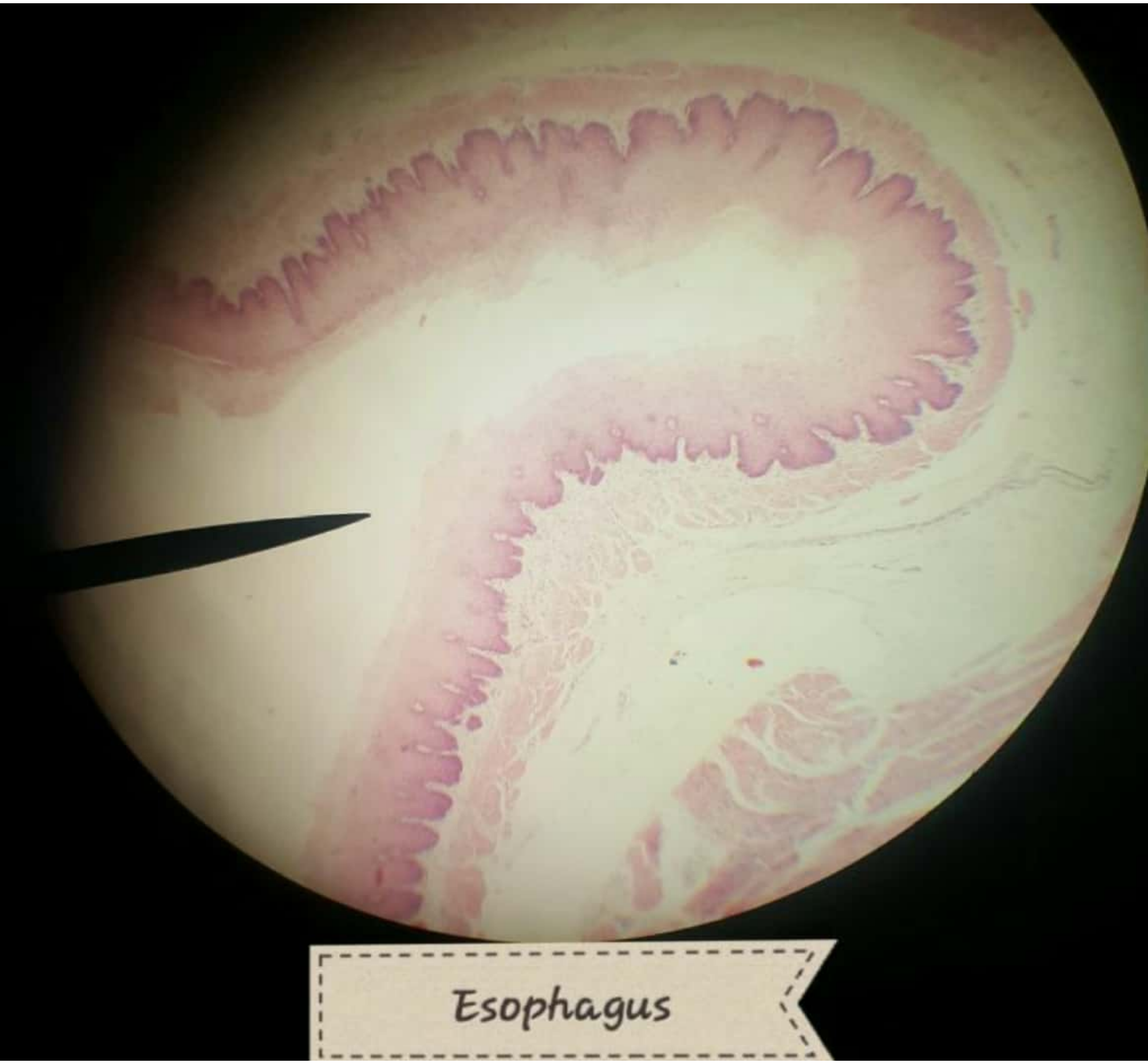
Vagina


testis
contain seminiferous tubule

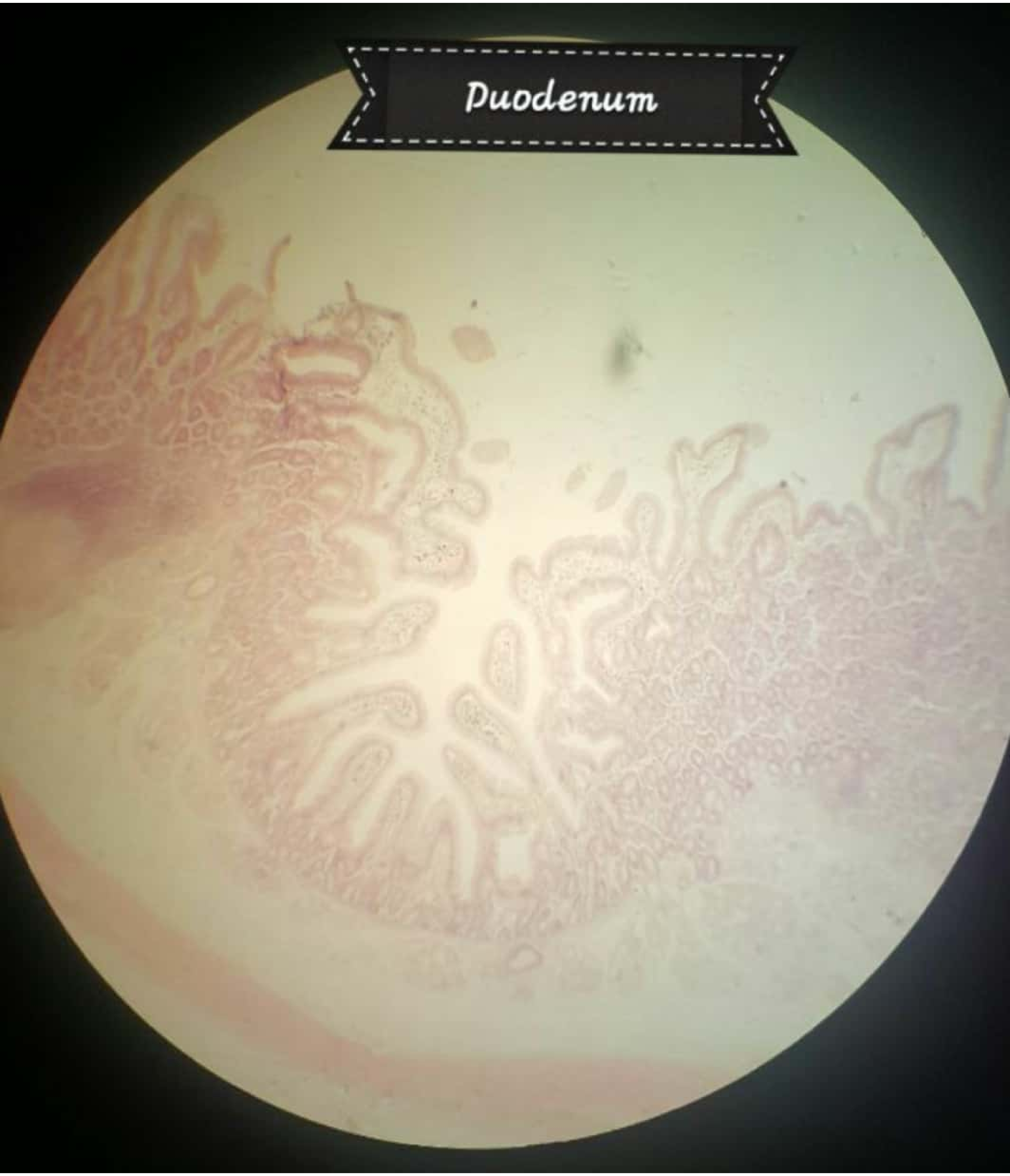

spermatocyte
spermatogonia
lumen contain flagela
spermatide
sertoli cell between spermatogonia and spermatocyte
seminiferous tubule


urinary bladder


urinary
bladder
Transition
epith . sac

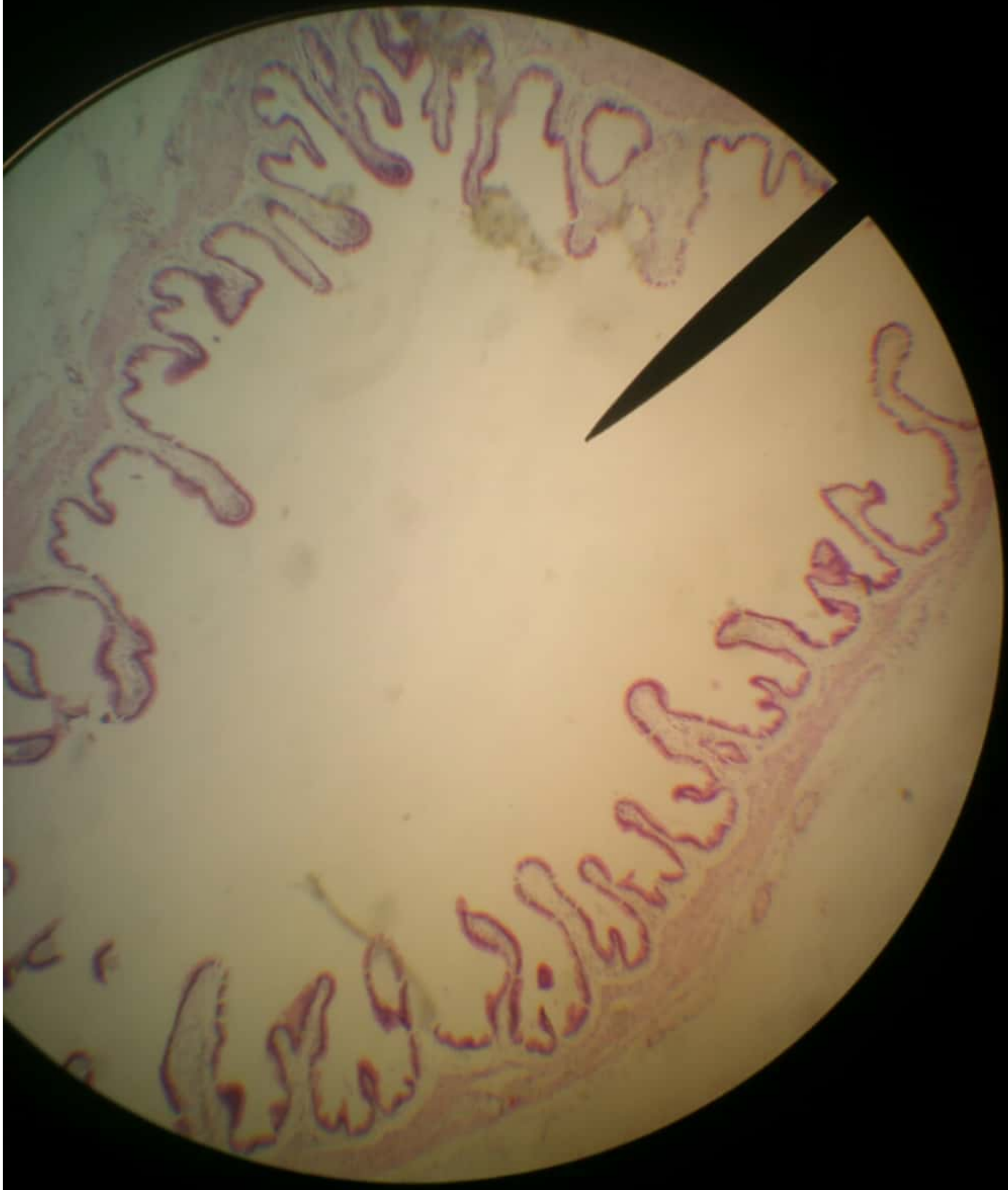


Esophagus


Duodenum

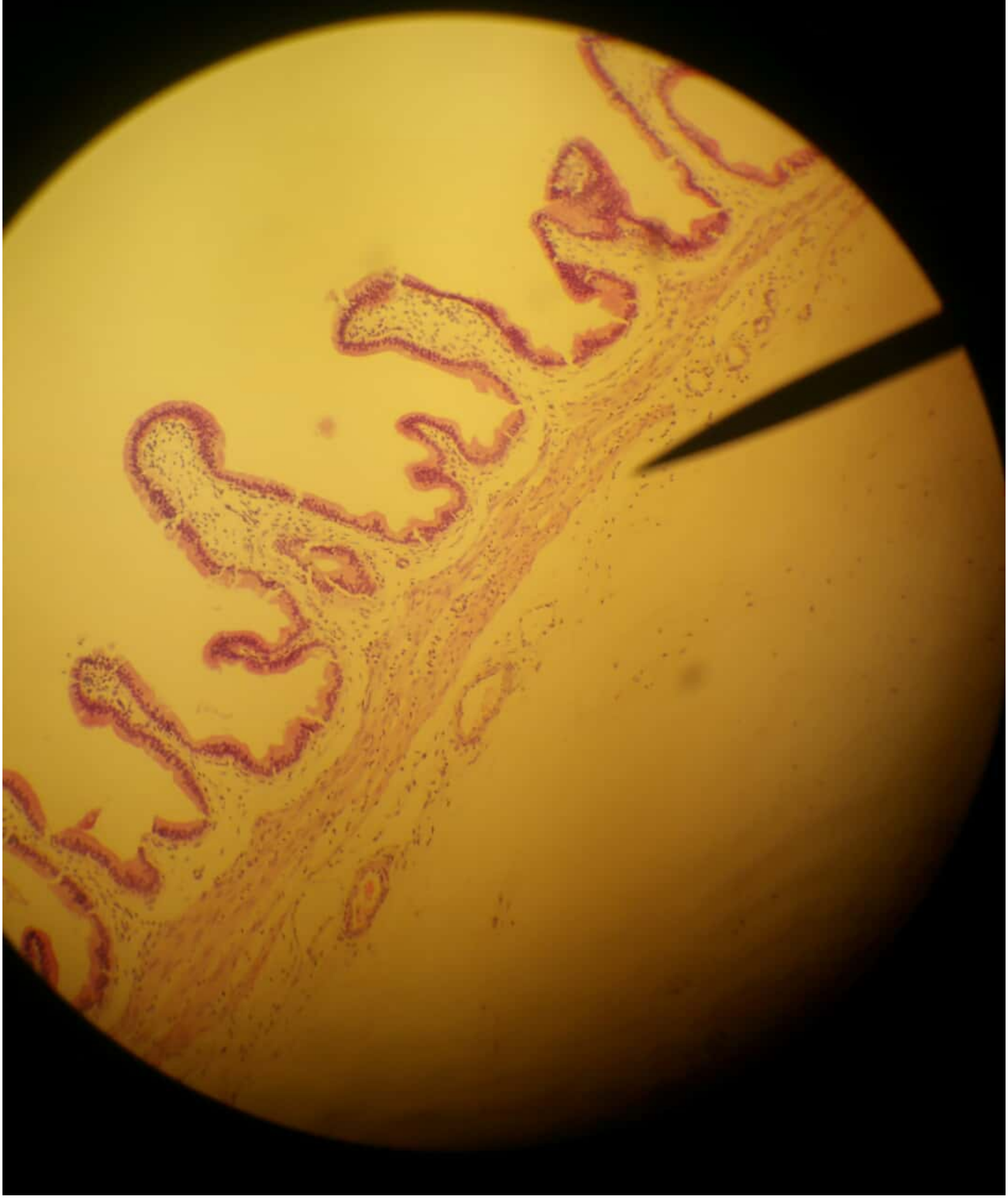
gall bladder

مهم

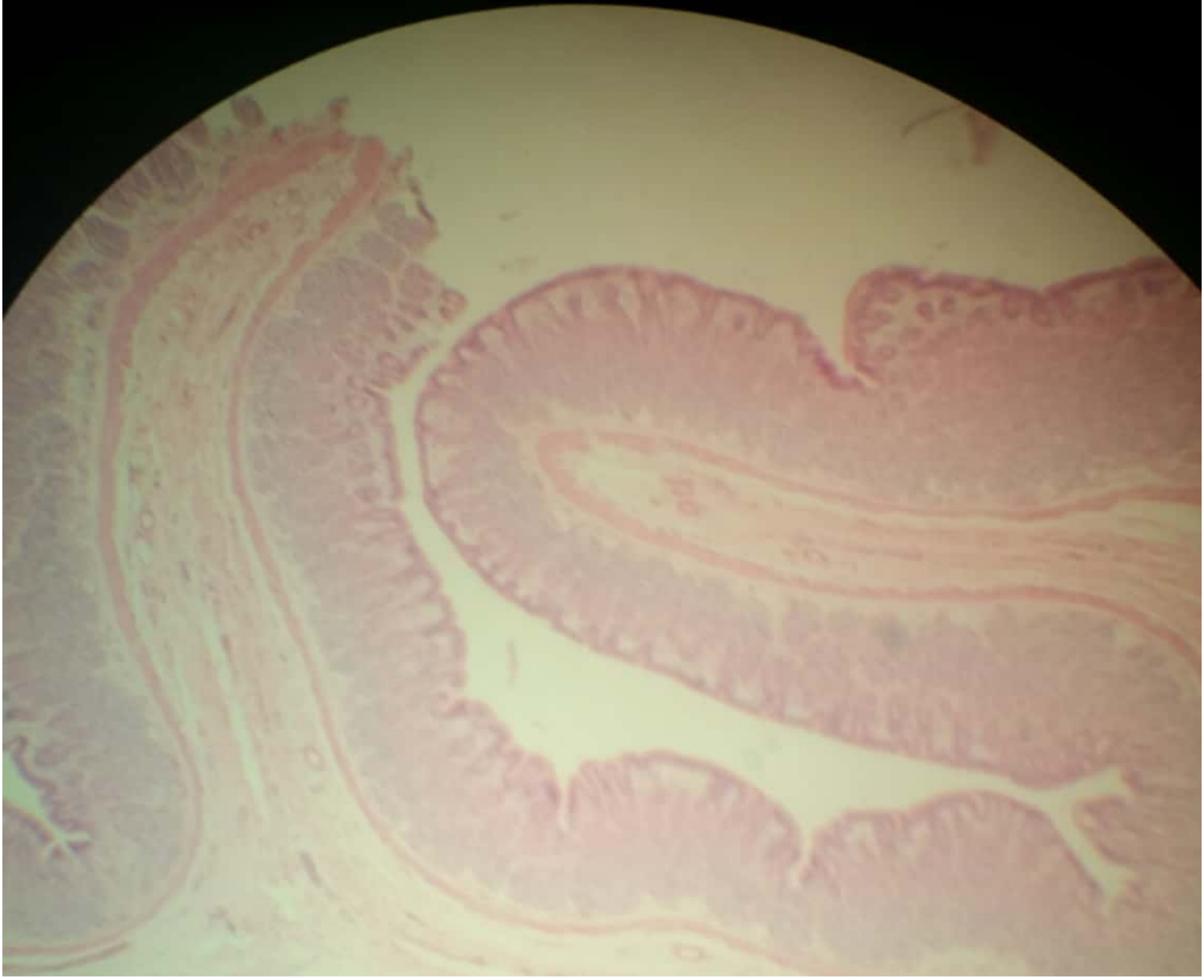


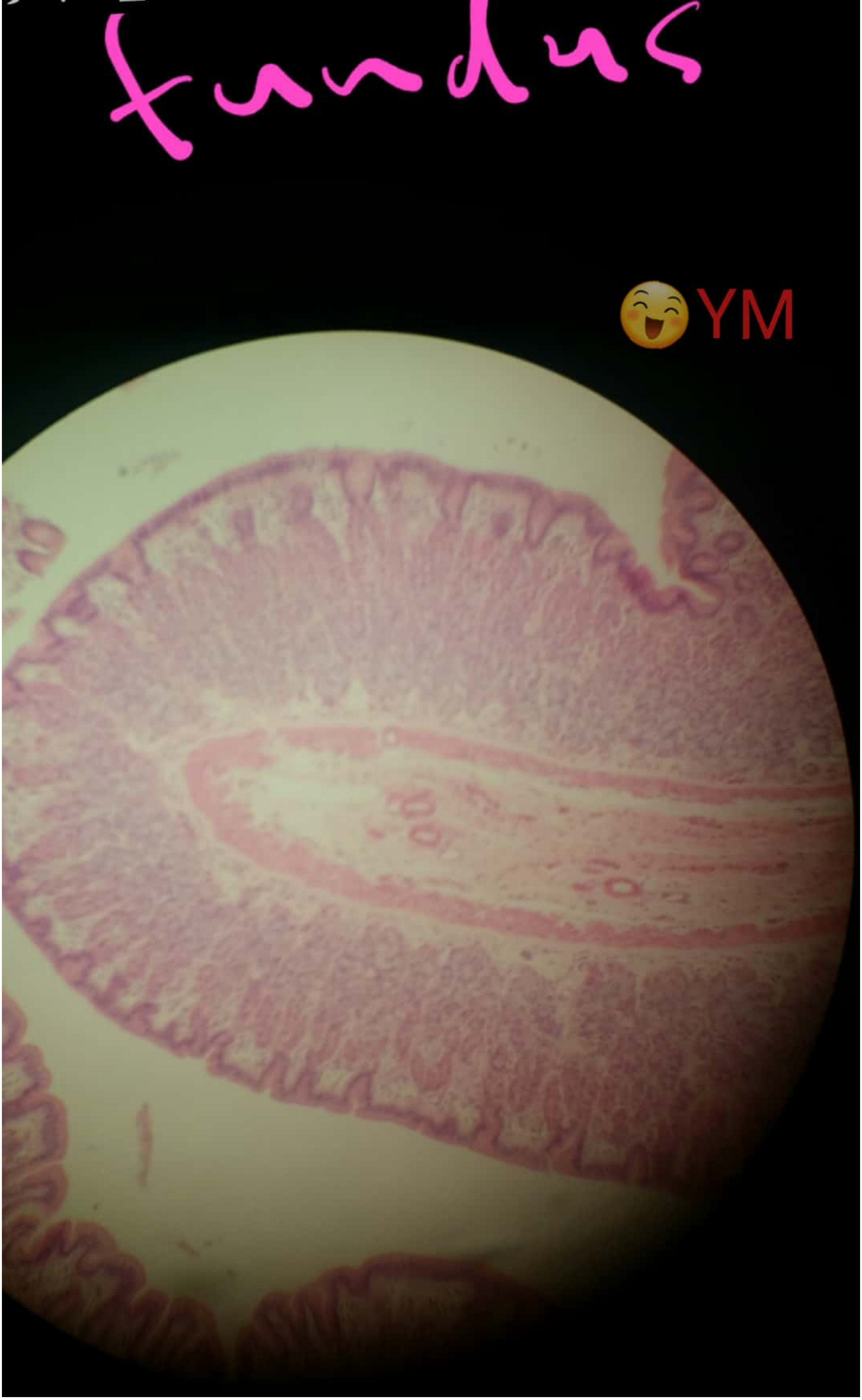
gall bladder

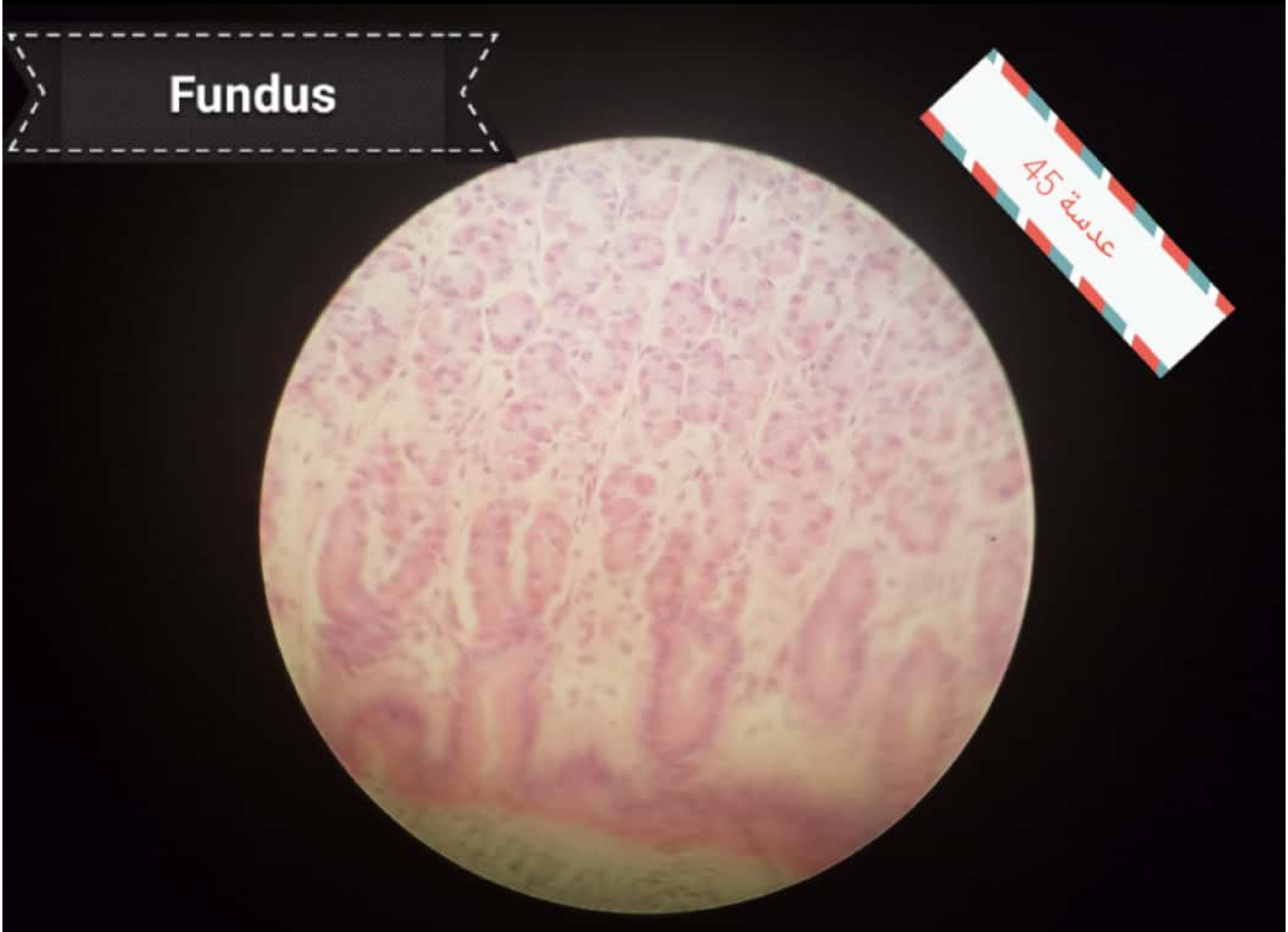
مهم

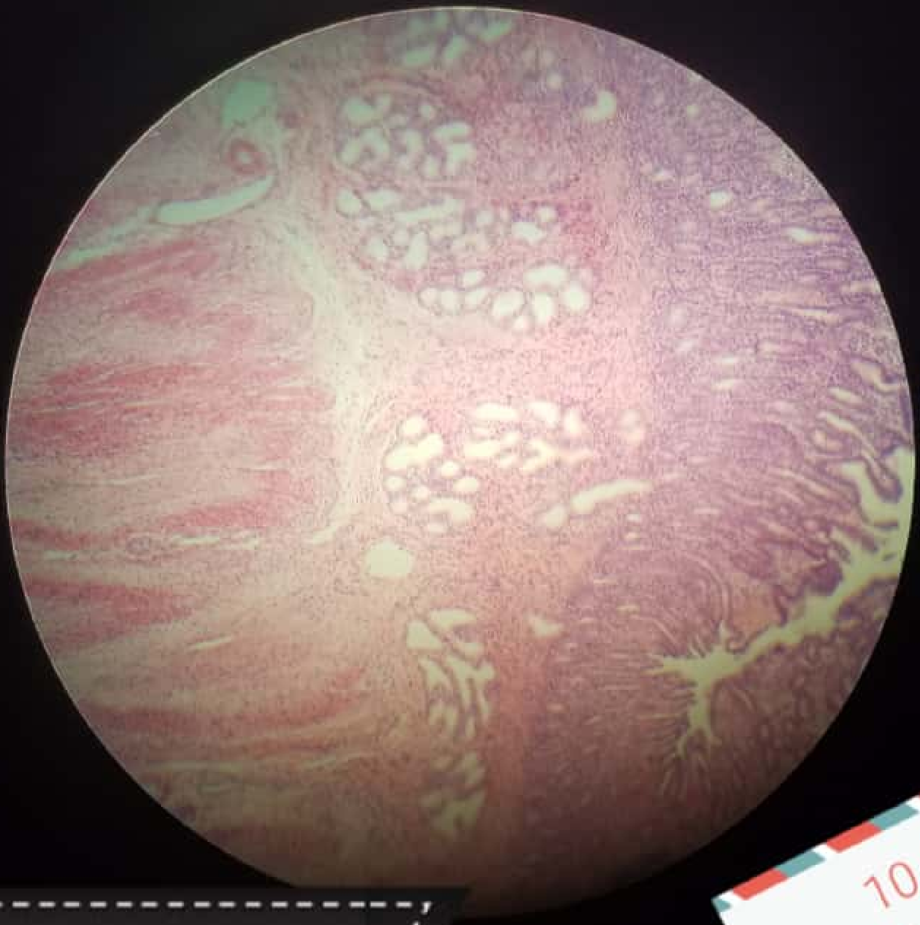


fundus of stomach



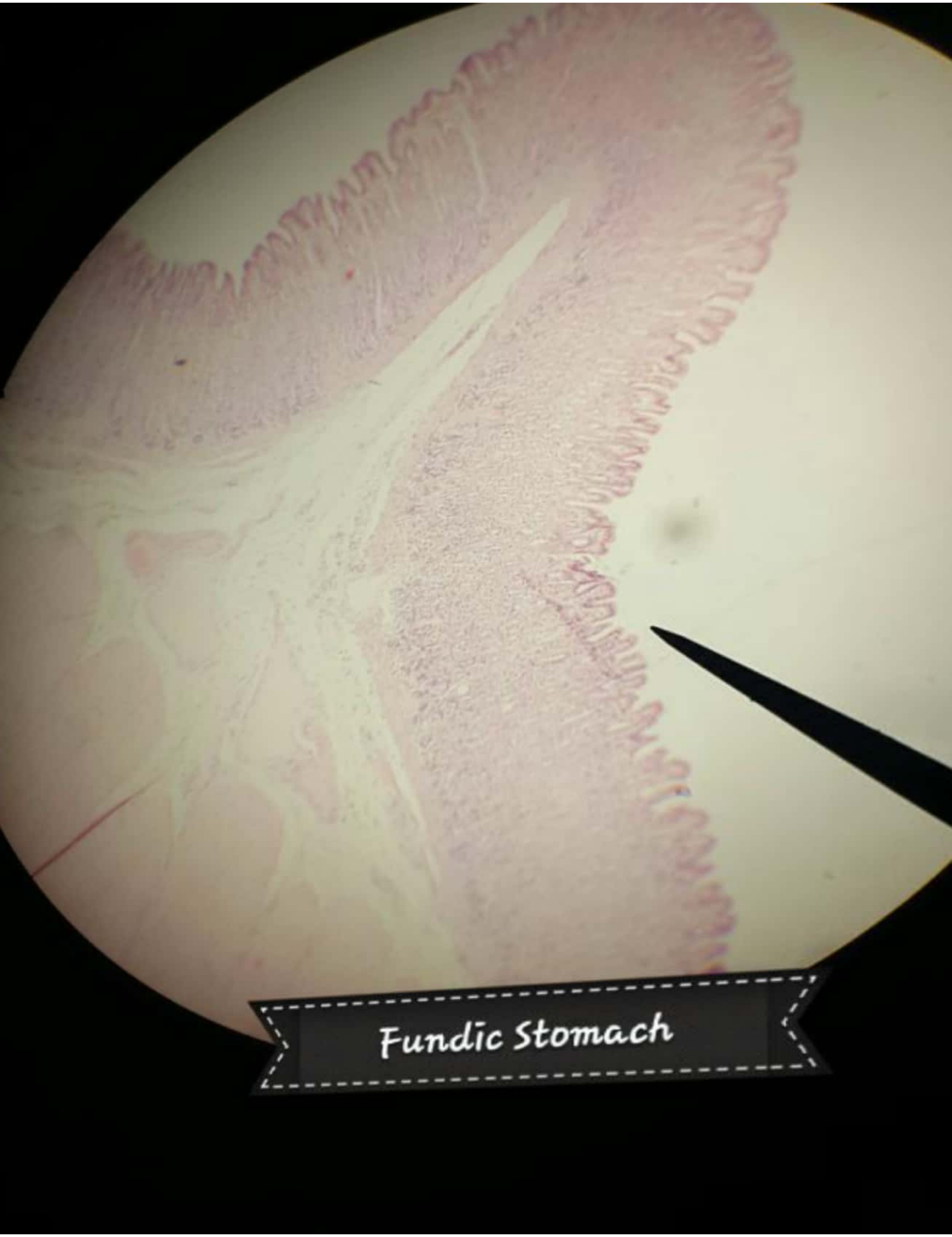

fundus
YM


Fundus
عدسة 45

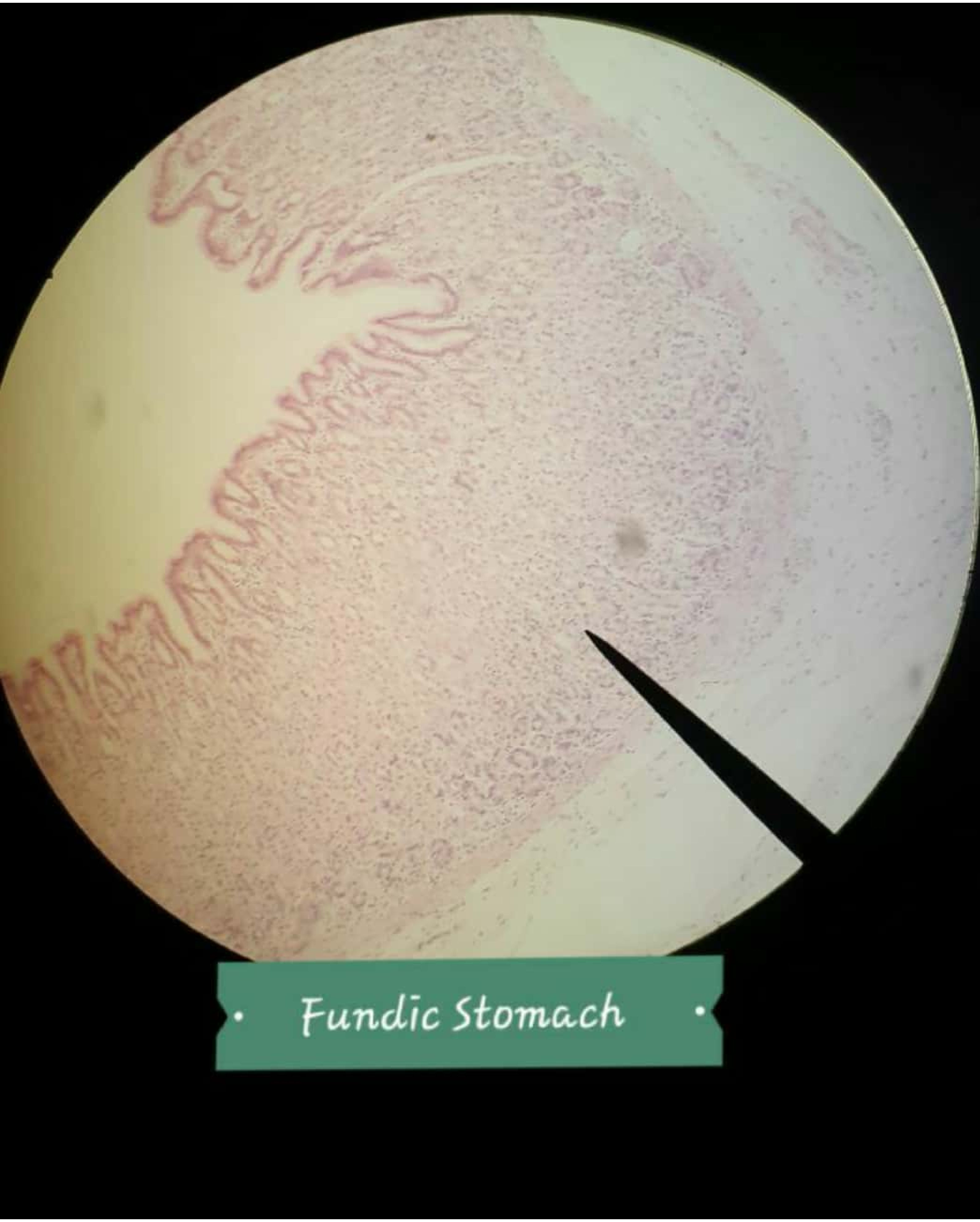


Dudenum

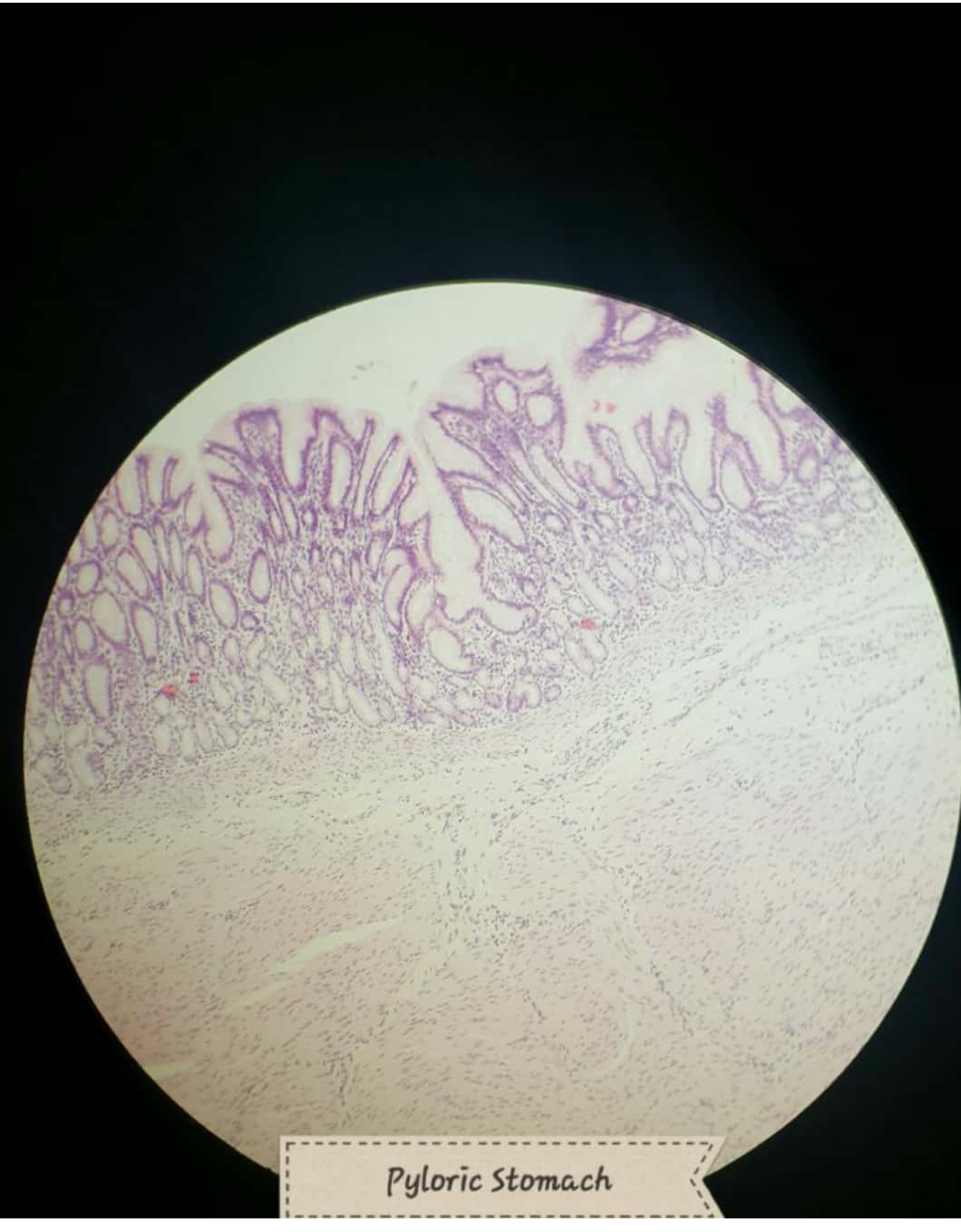
عدسة 10



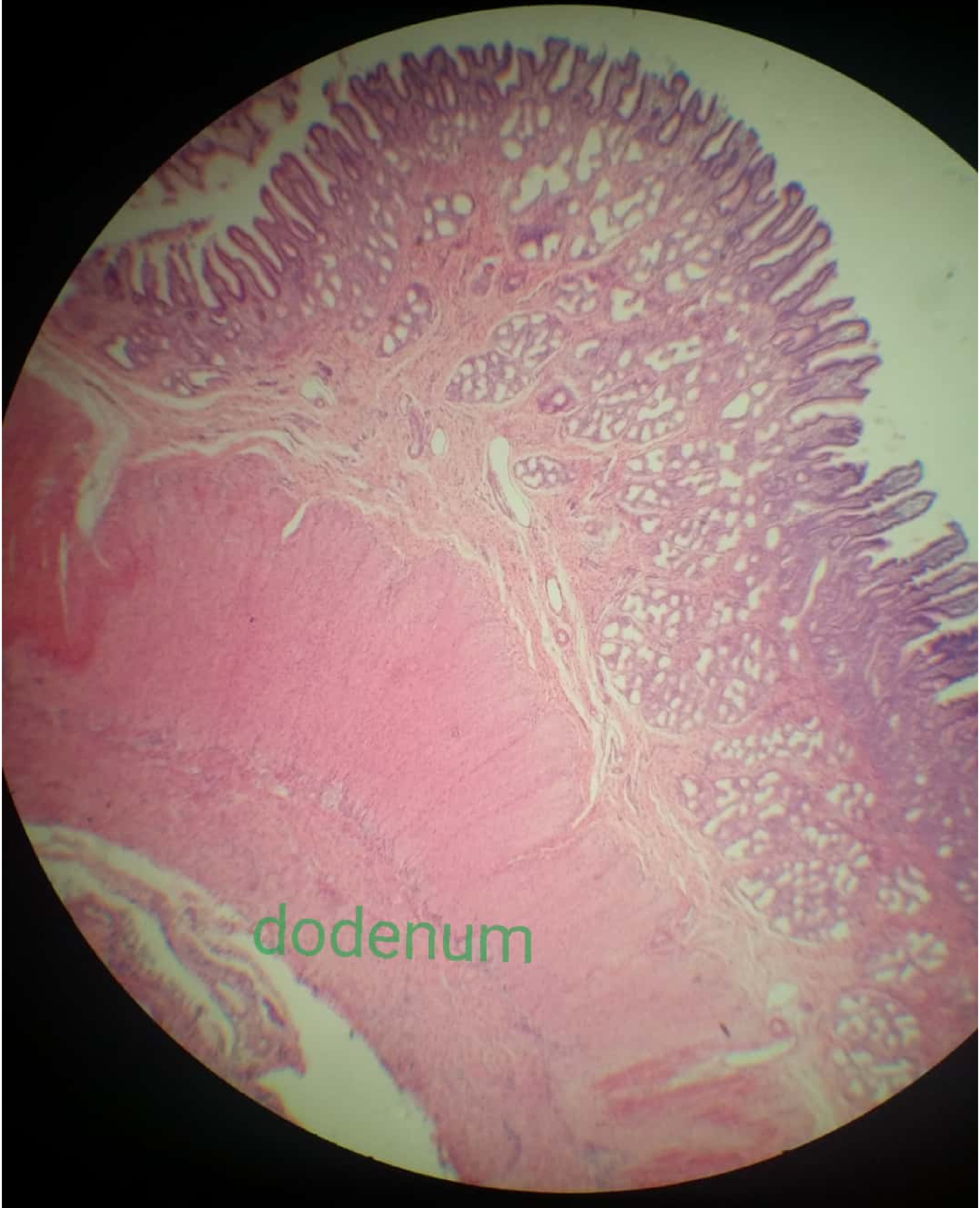
Fundic Stomach

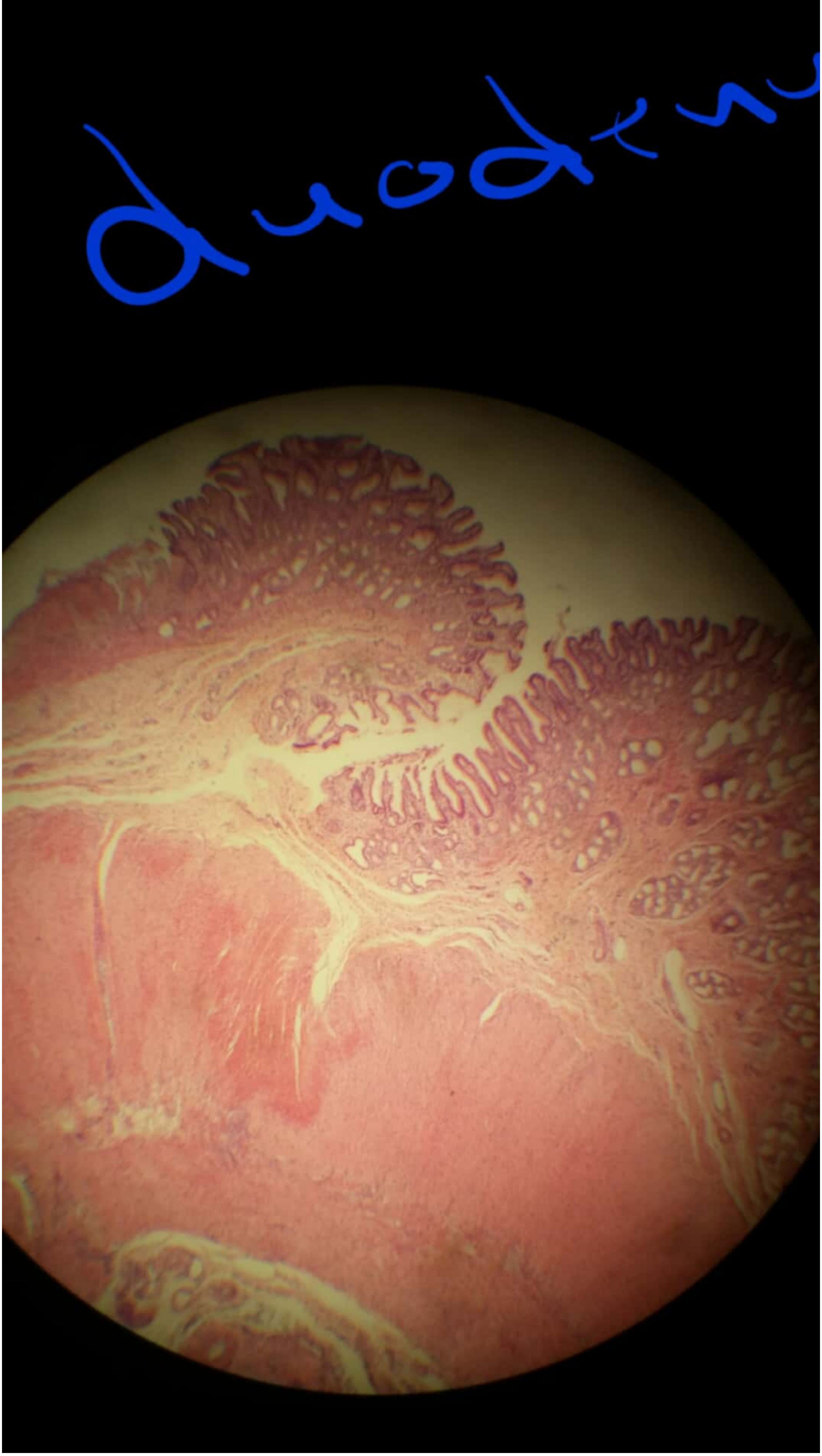


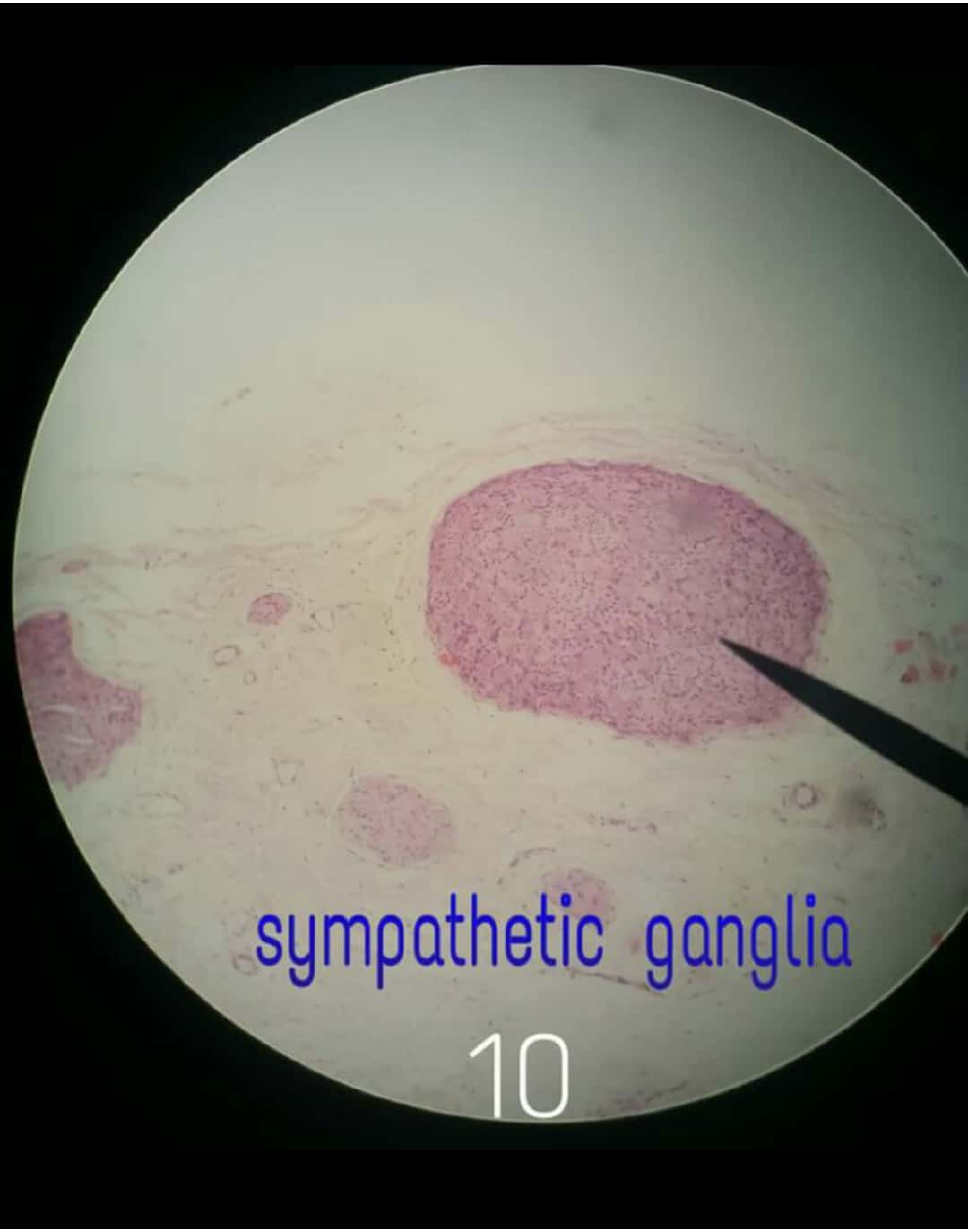
Fundic Stomach

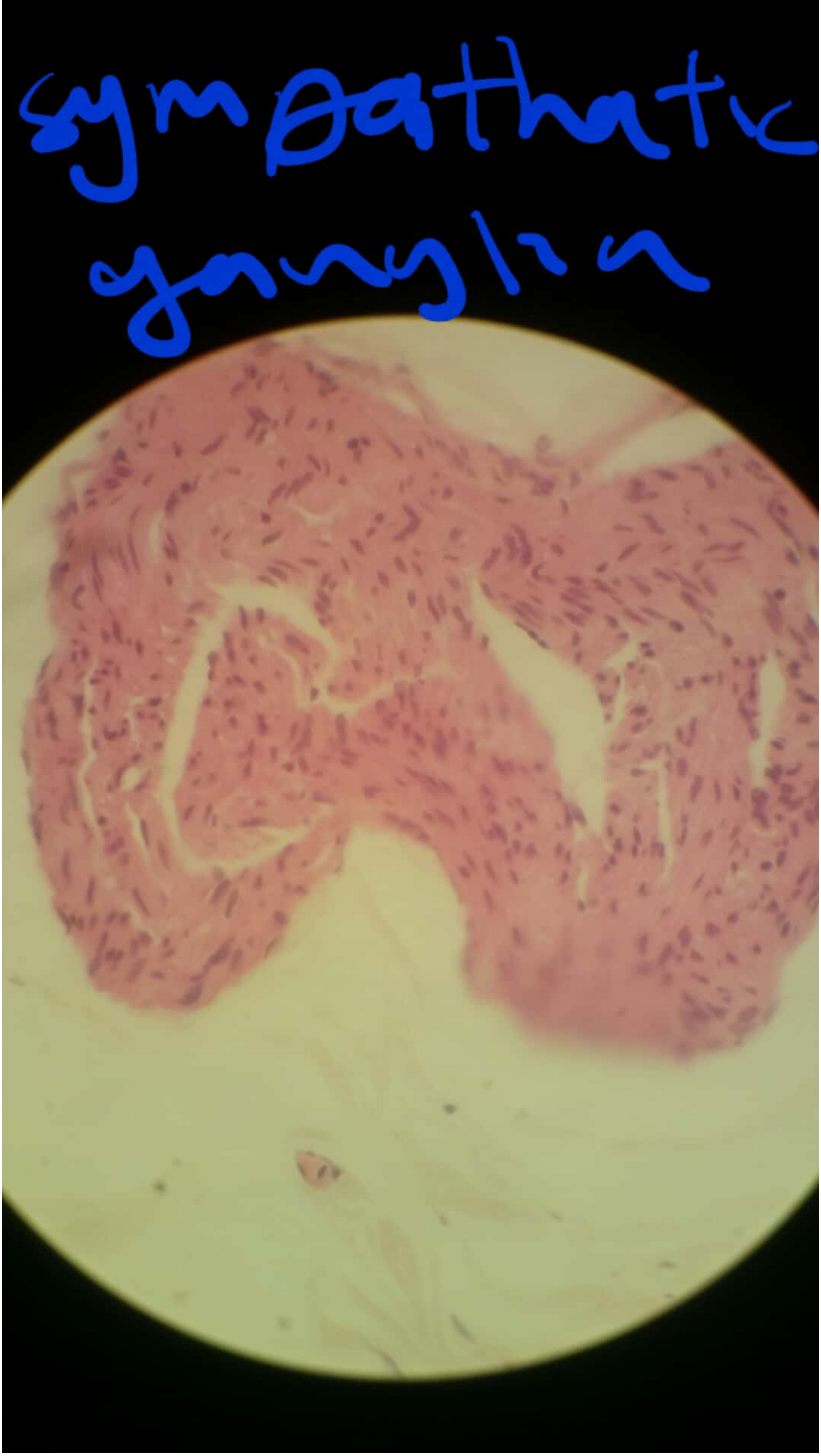


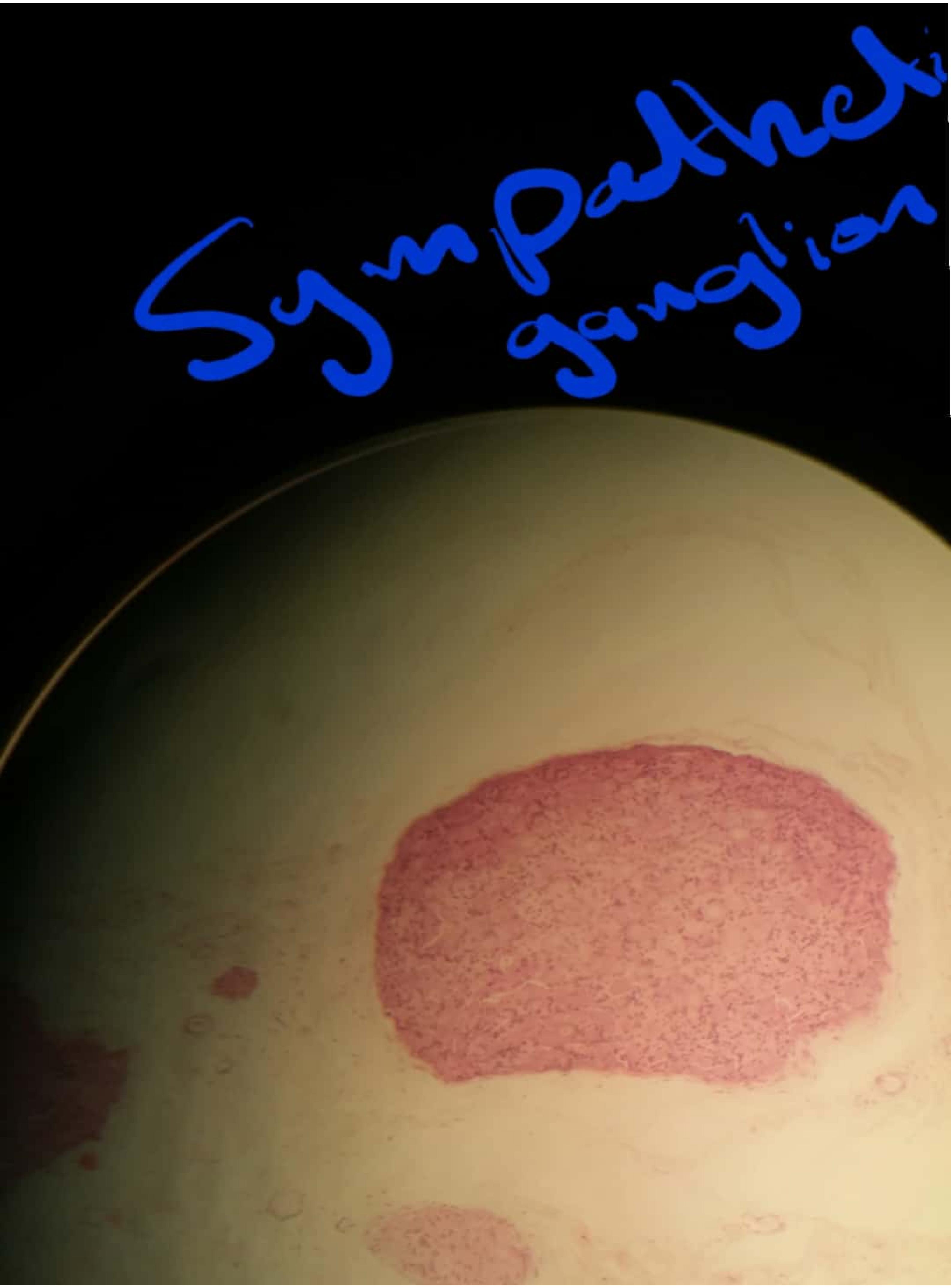
Pyloric Stomach

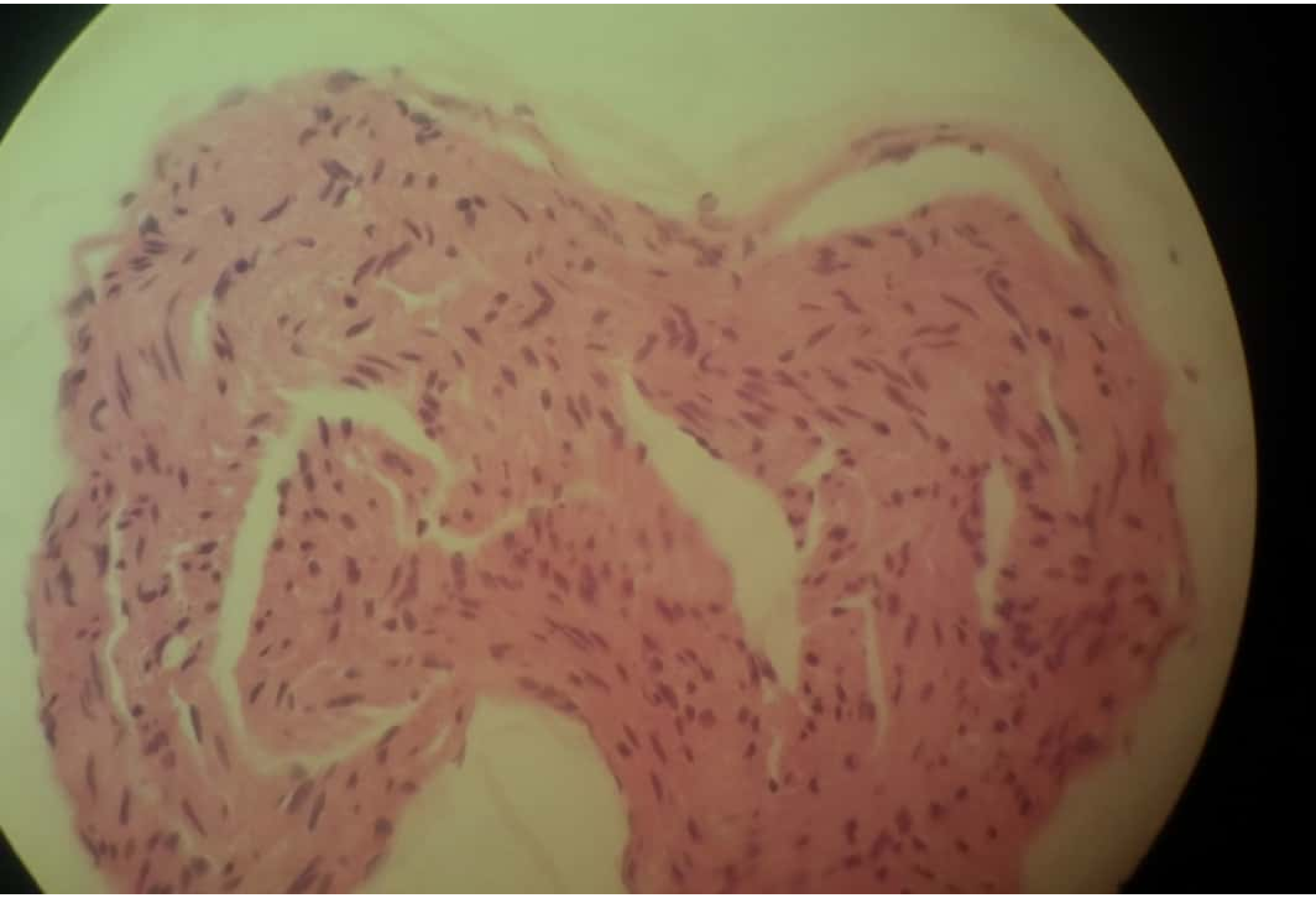

dodenum

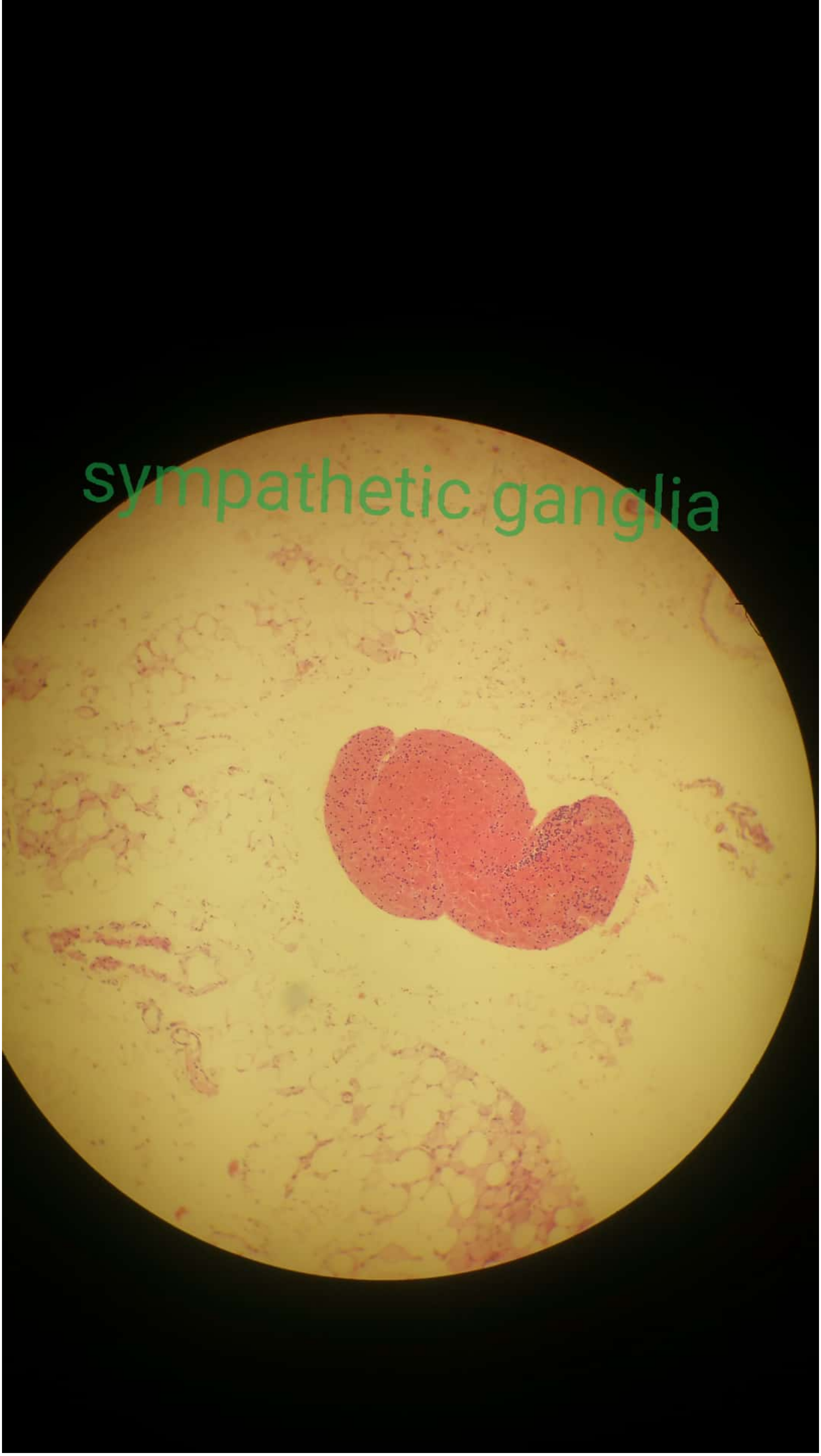

duodenu


sympathetic ganglia
10


sympathatic
ganglia

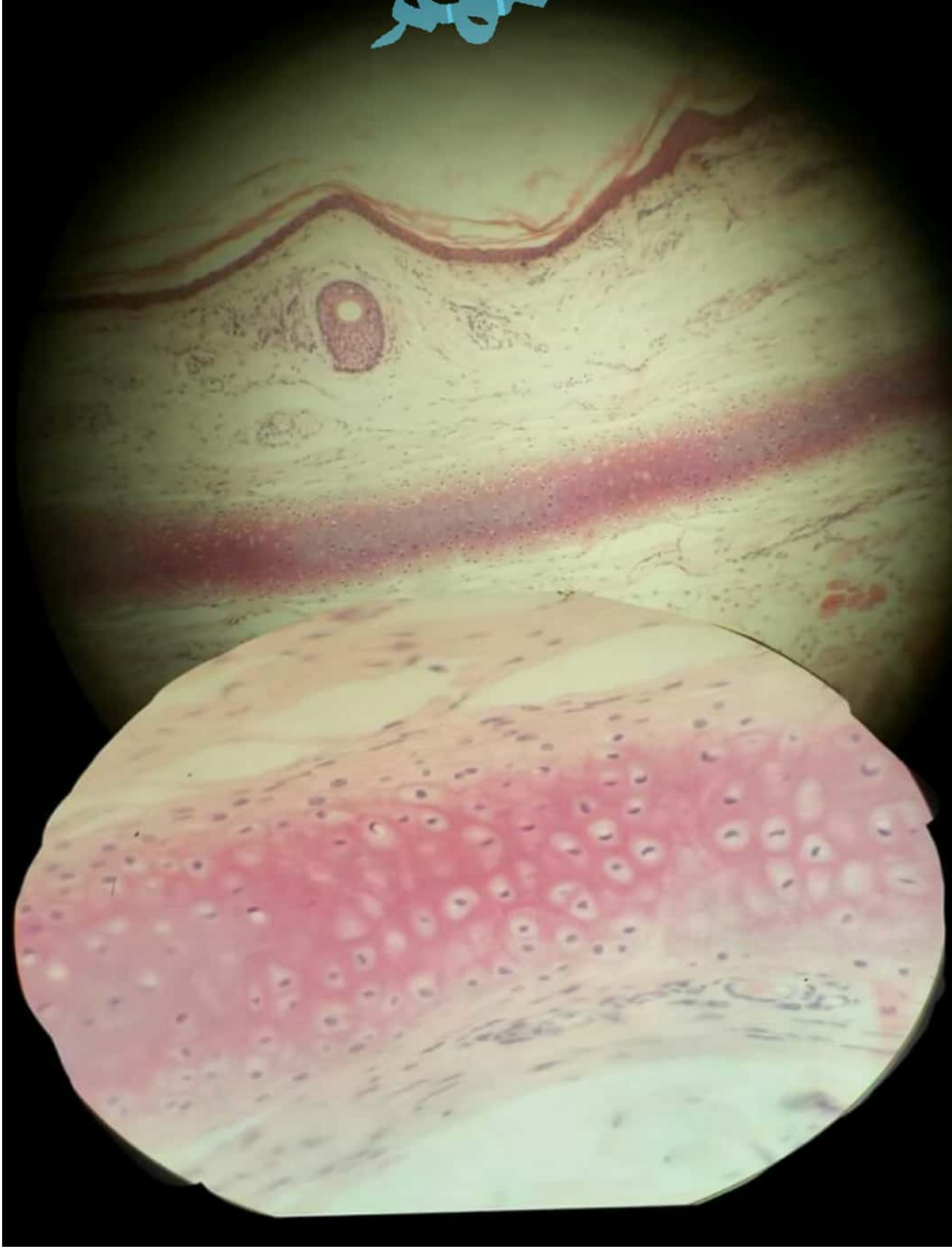

Sympatheti
ganglion

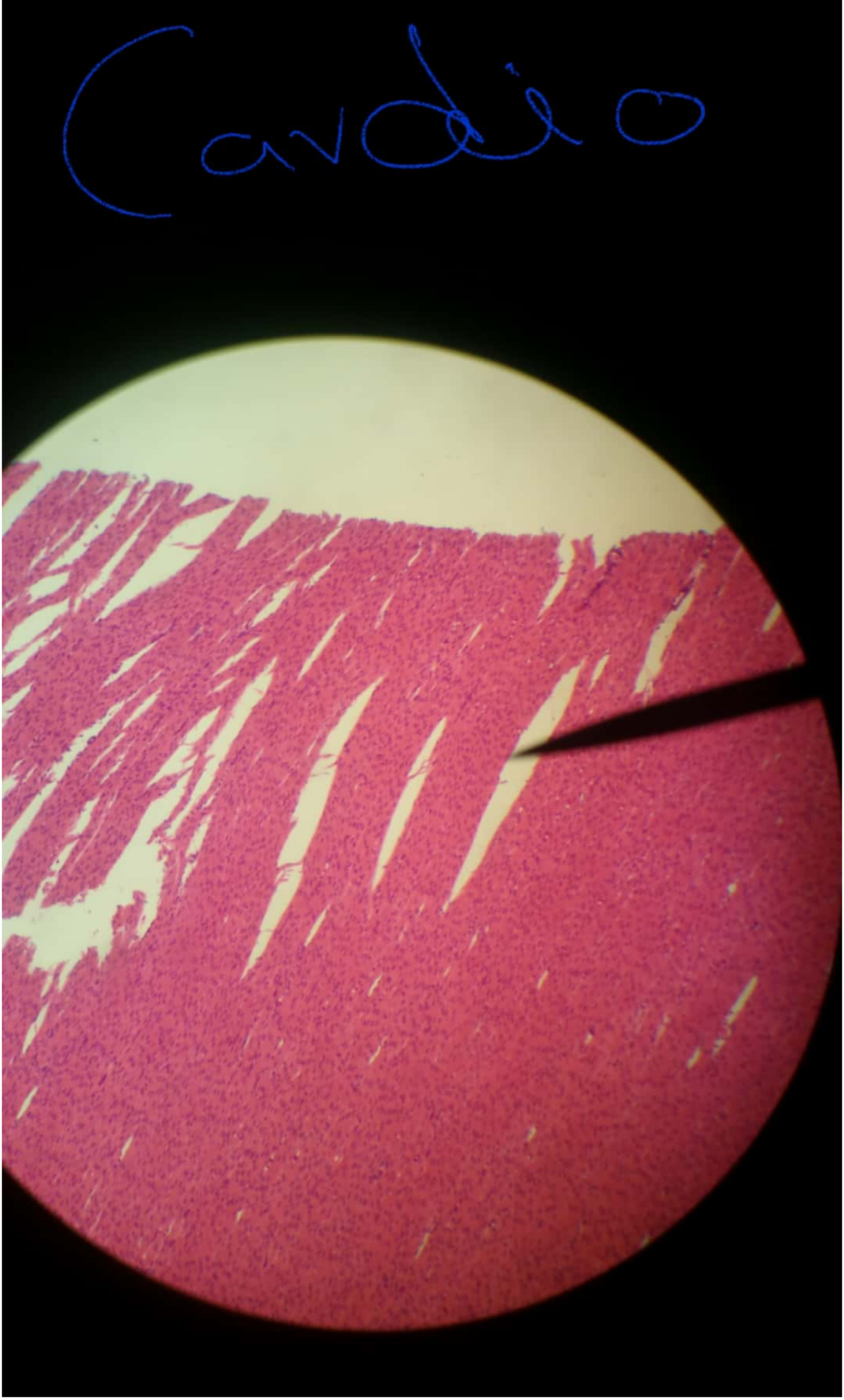



sympathetic ganglia

Elastic cartilage

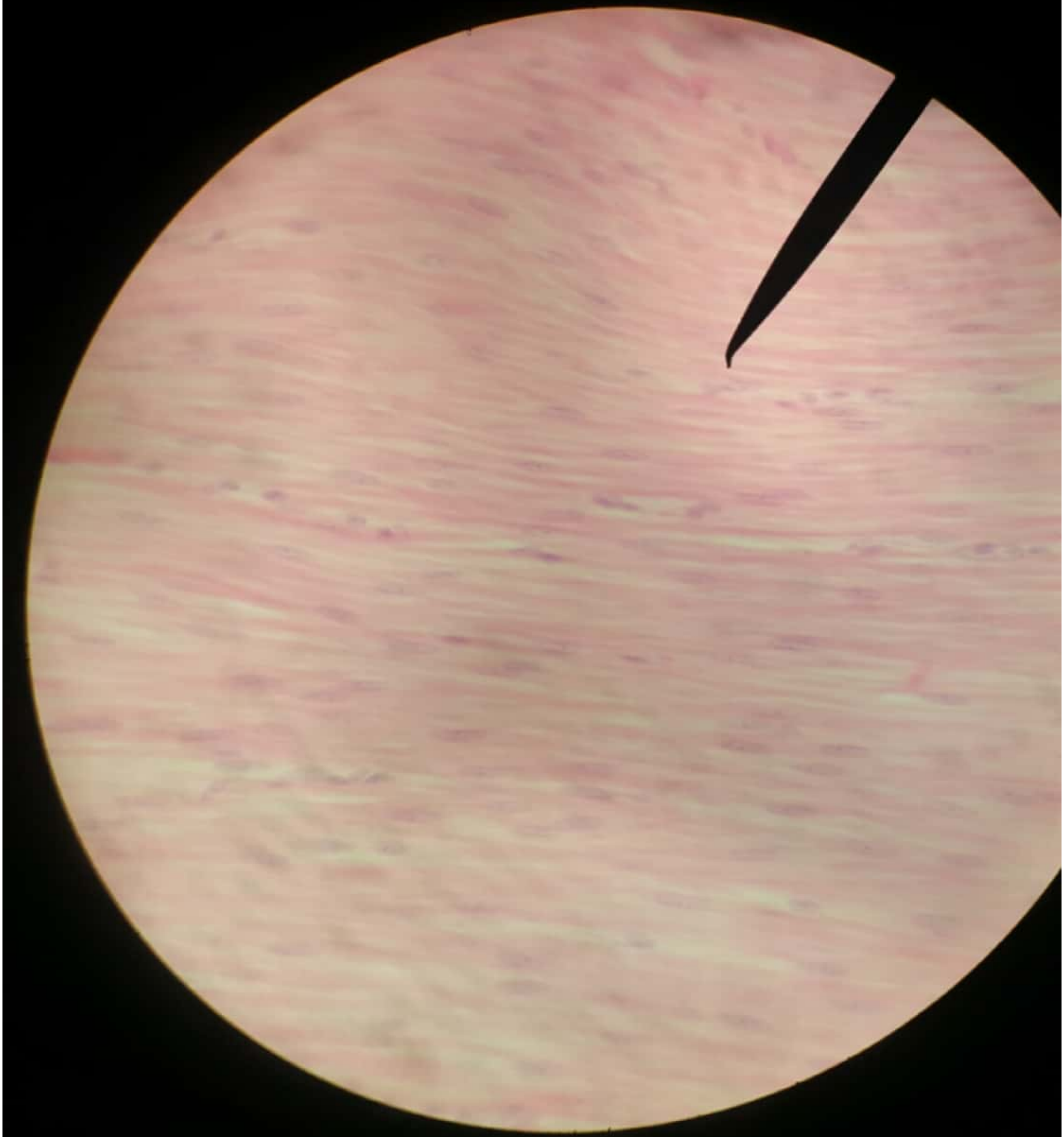
مهم

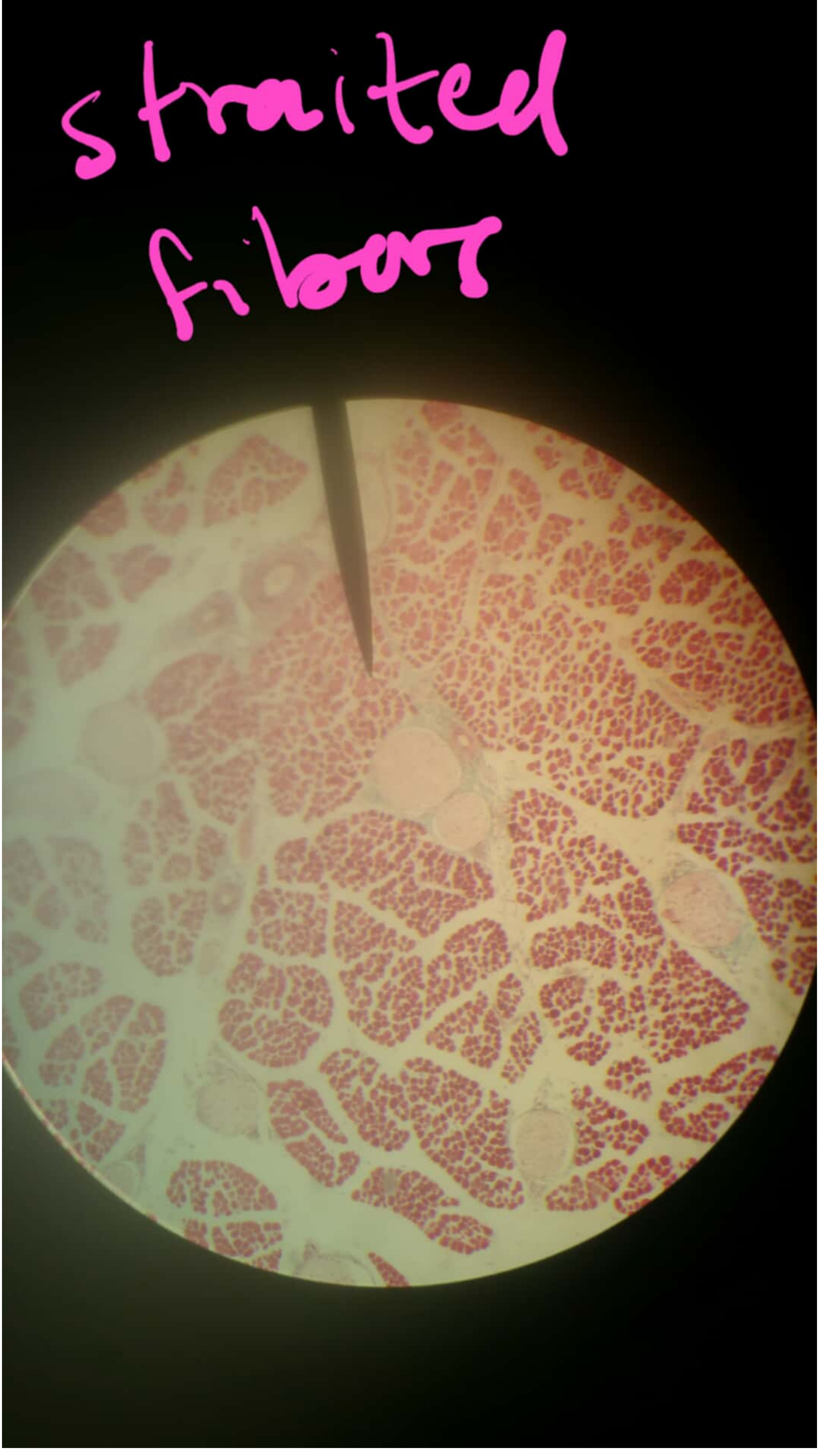



Cardio

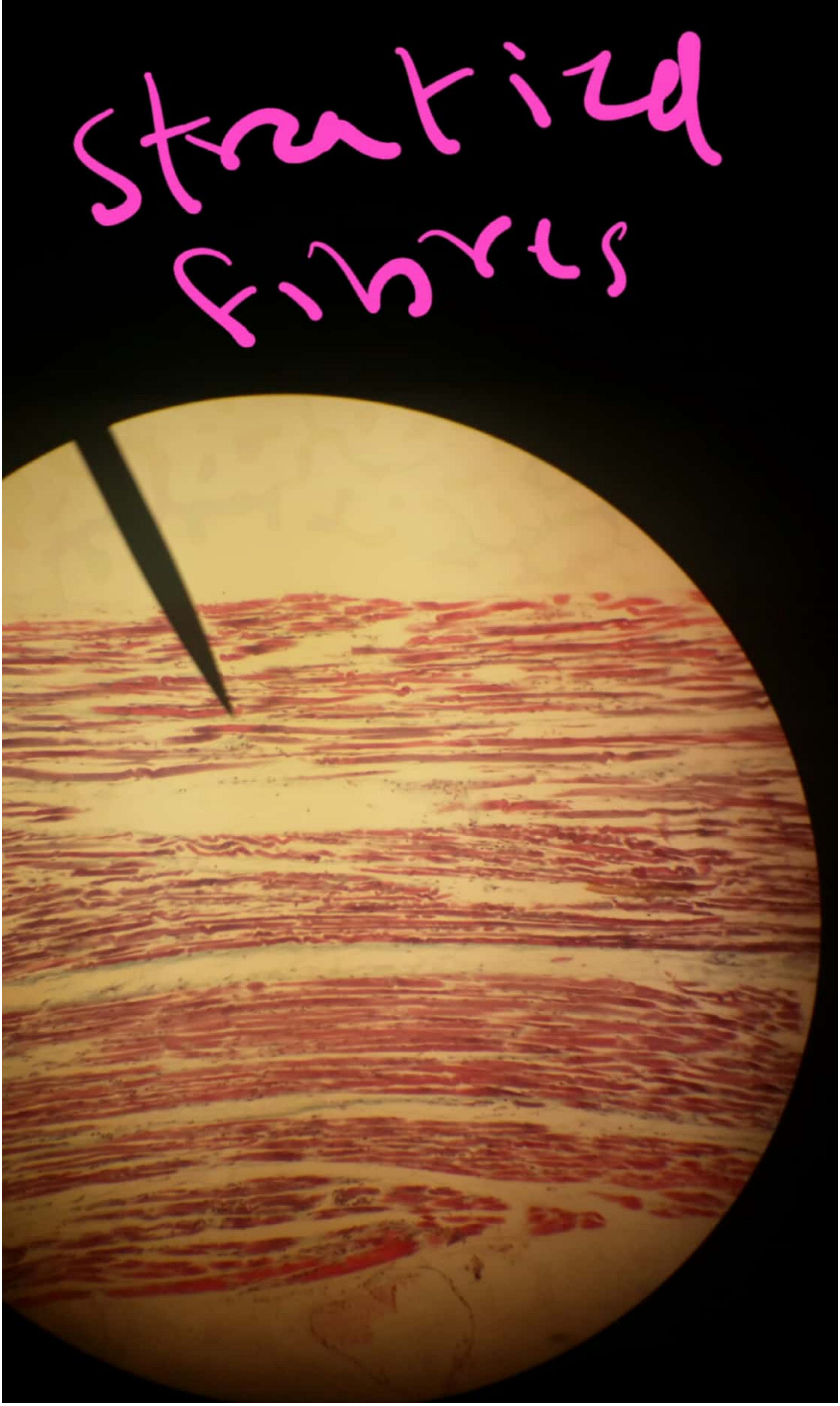
smooth

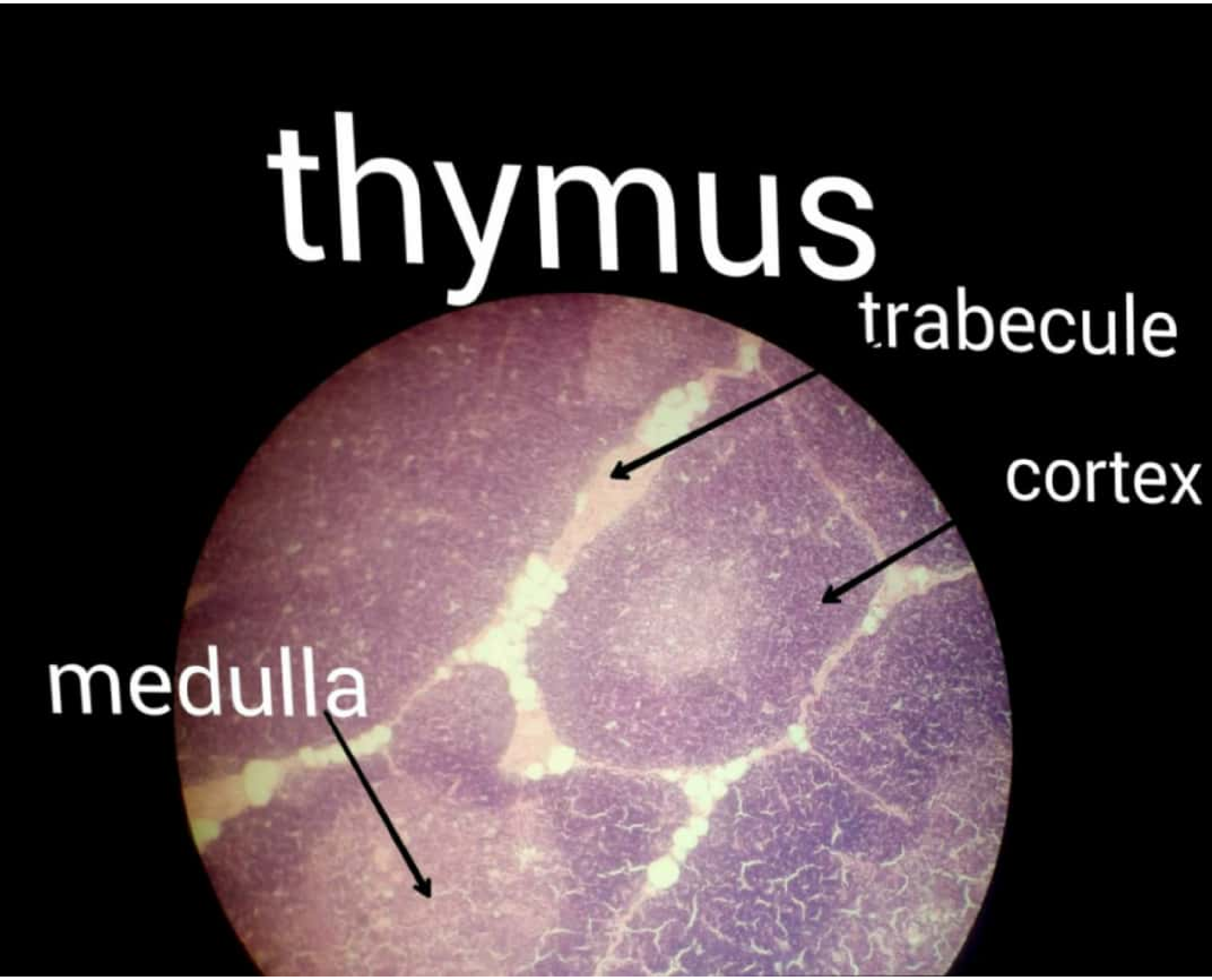
m.

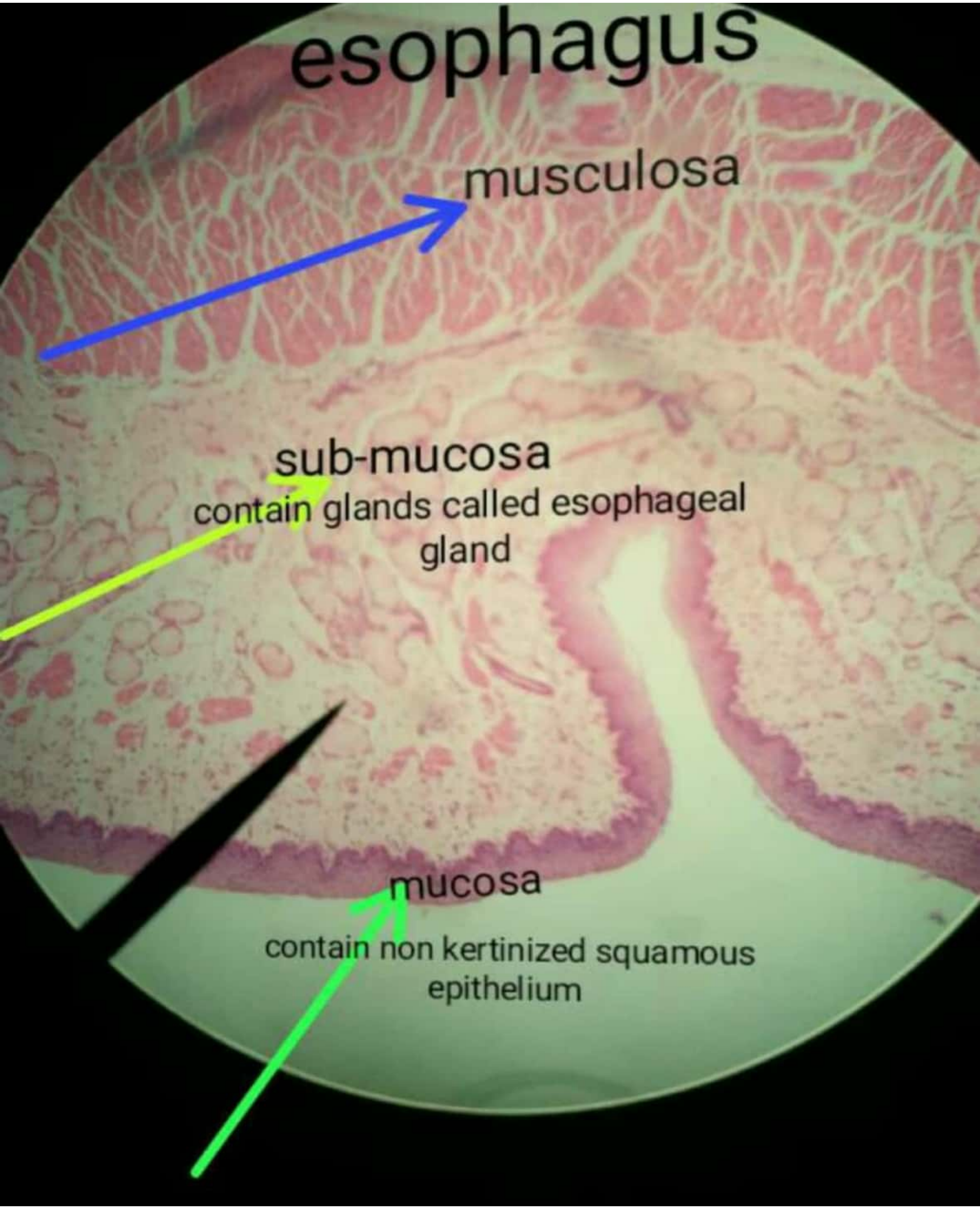




straited fiber


Stratied fibres

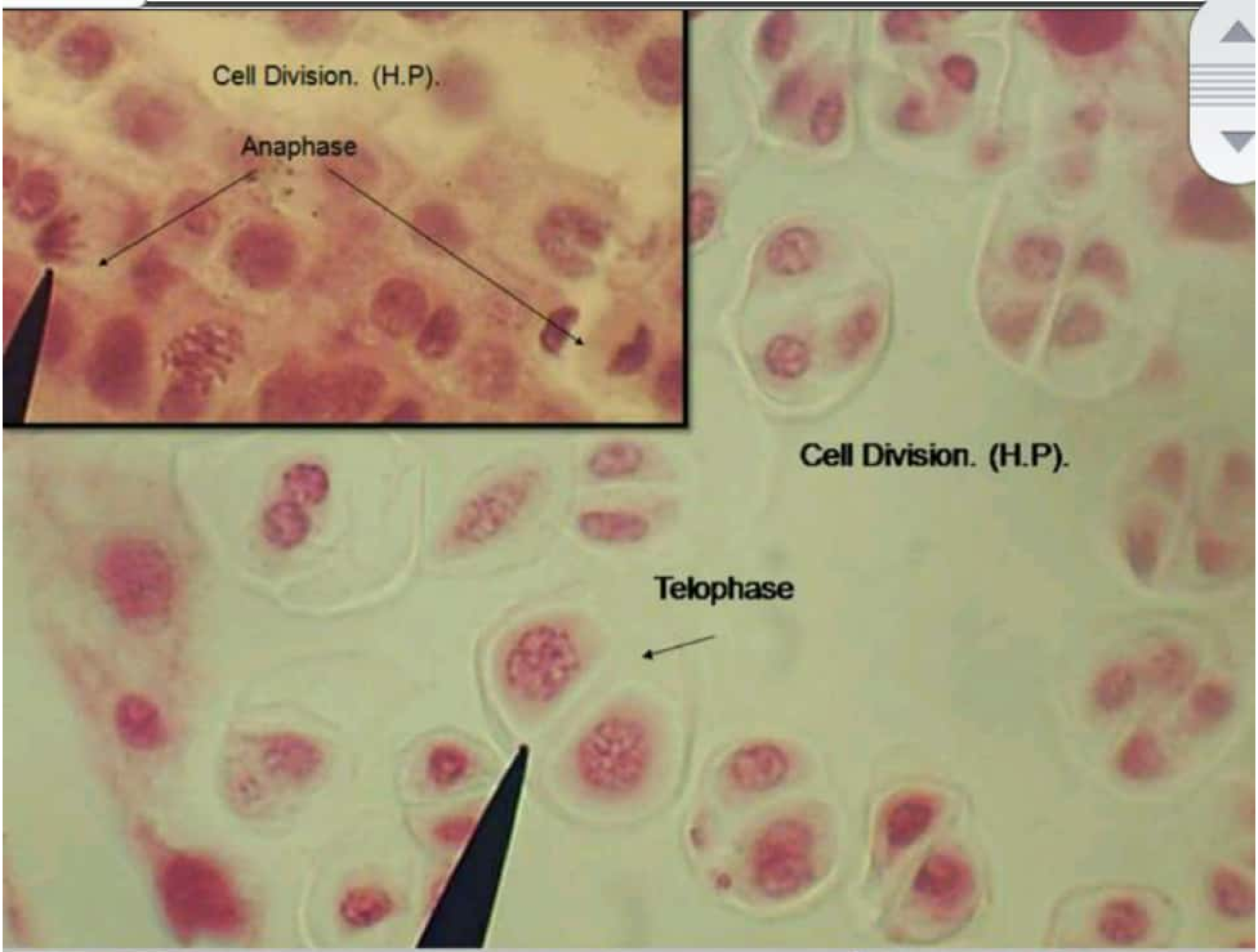

thymus
trabecule
cortex
medulla

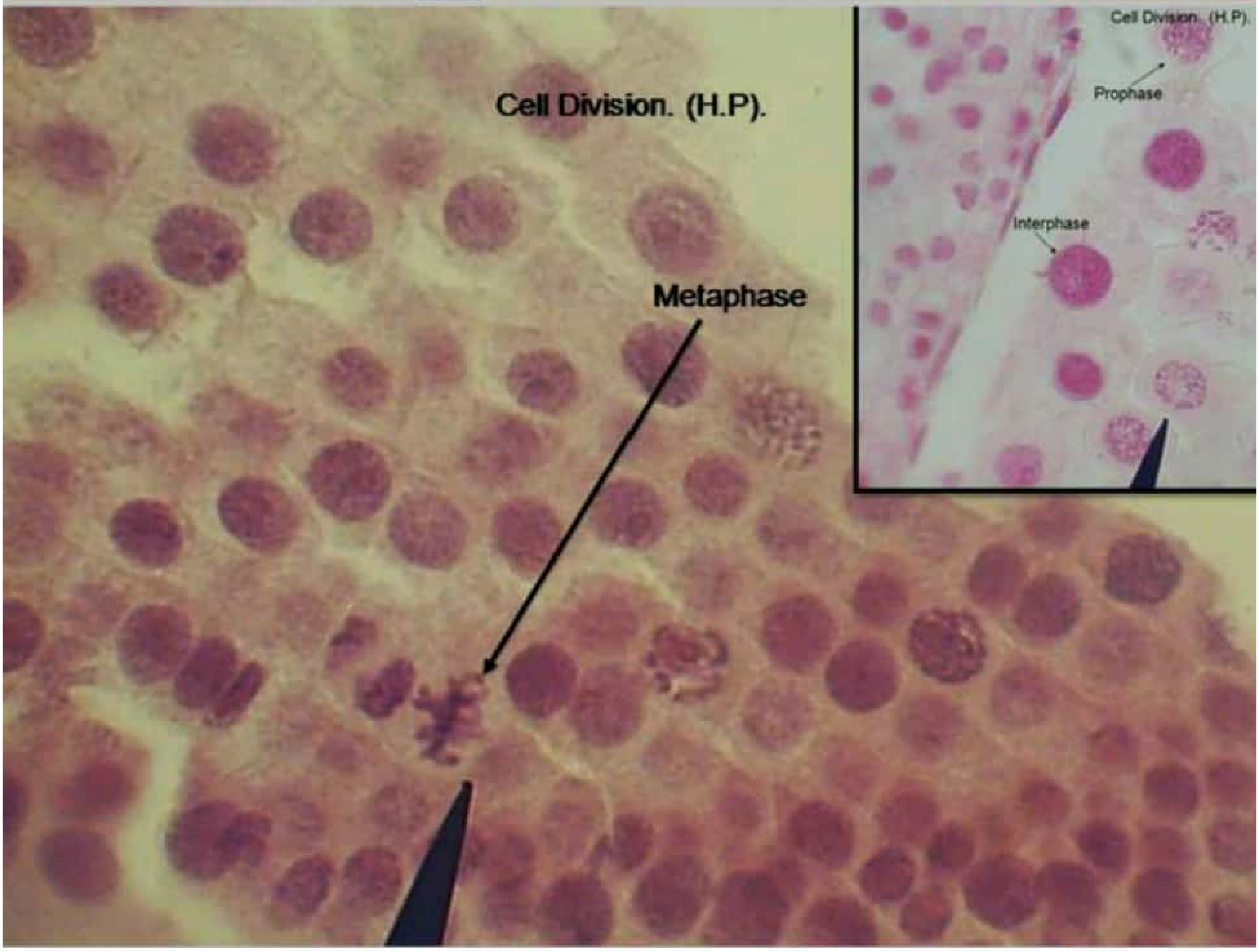

esophagus
musculosa
sub-mucosa
contain glands called esophageal gland
mucosa
contain non kertinized squamous epithelium

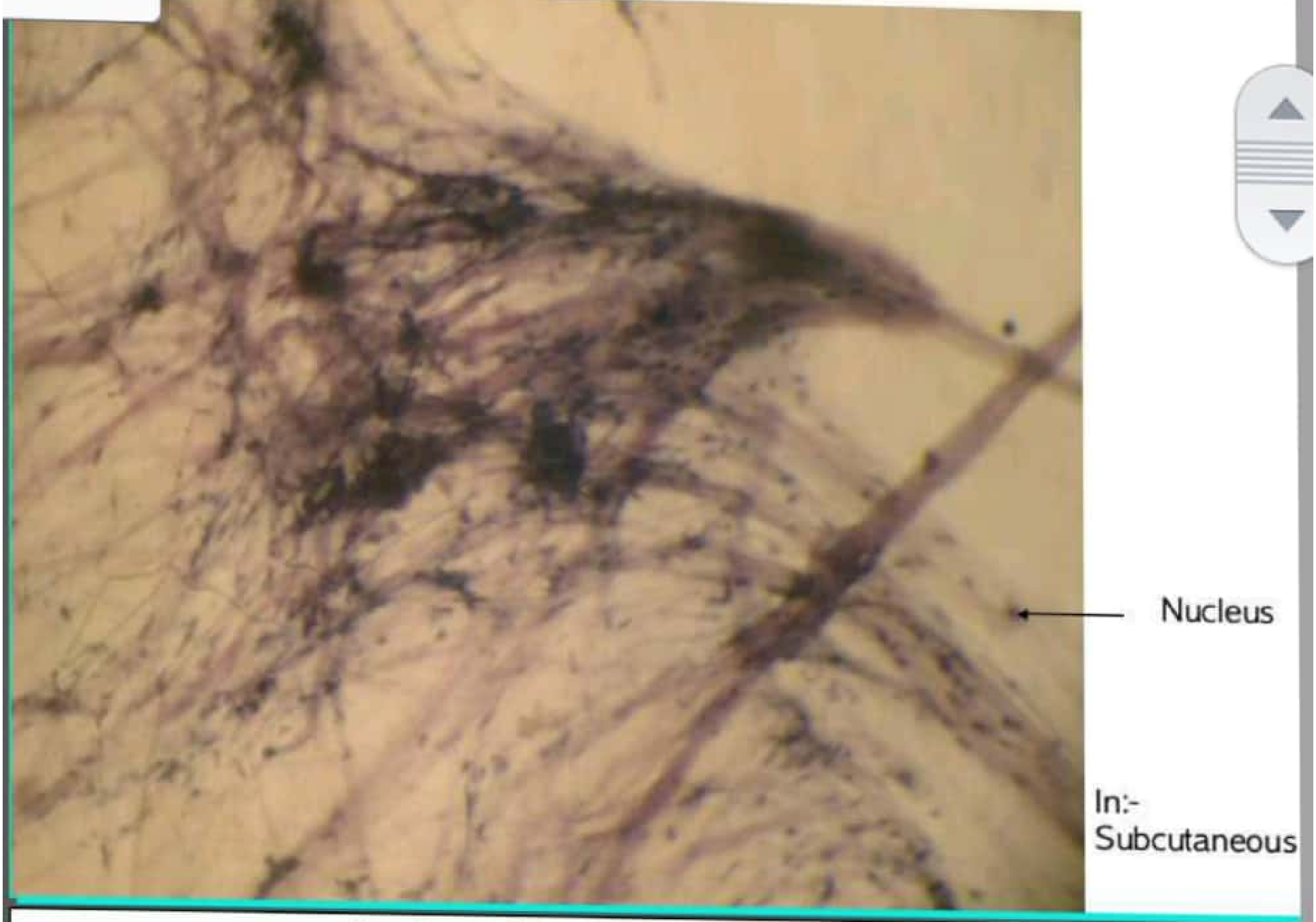
السلايدات القديمه

مأخوذه من pdf لدفع سابقة

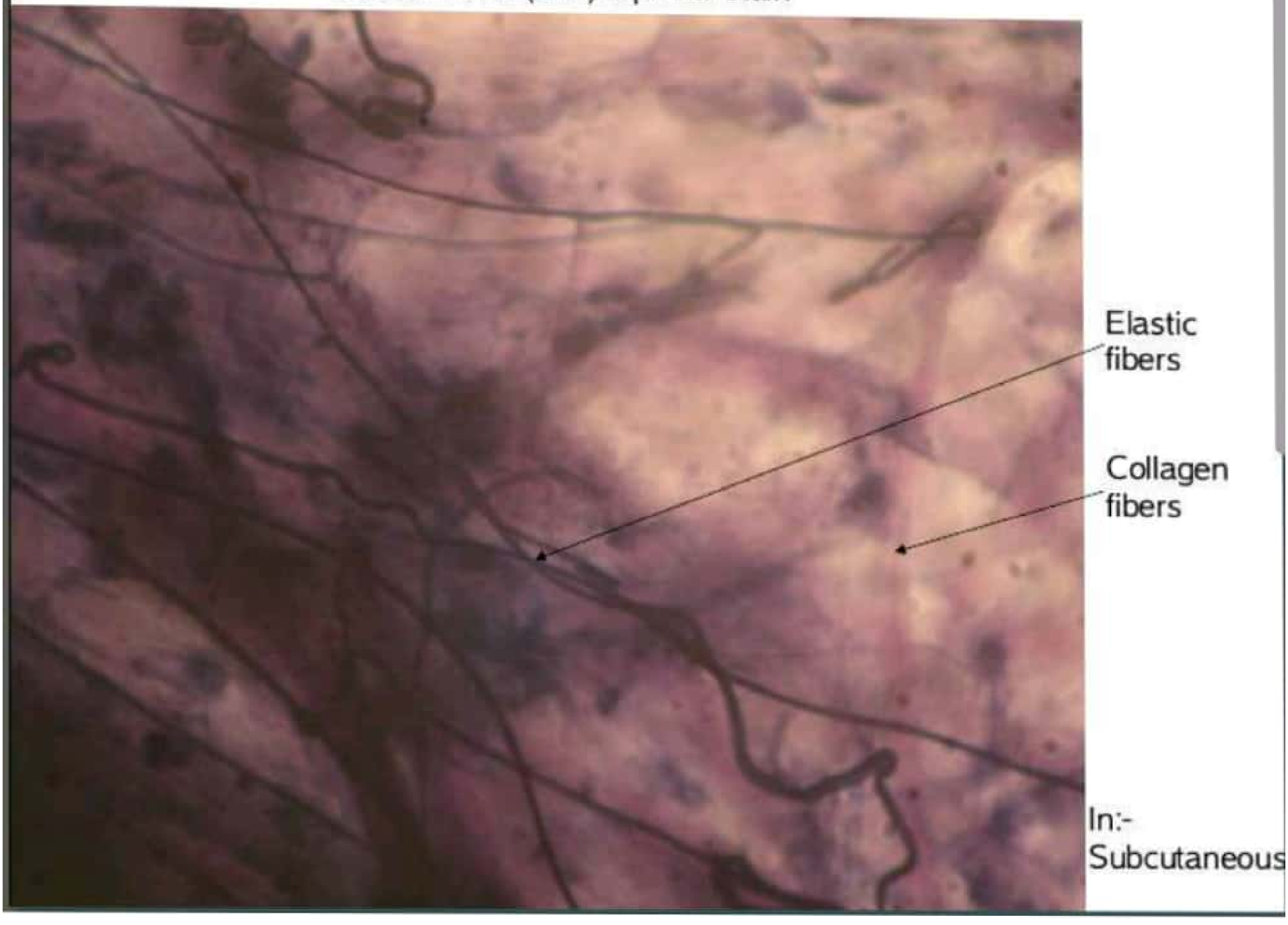
Y.M.SH


Cell Division. (H.P).
Anaphase
Cell Division. (H.P).
Telophase

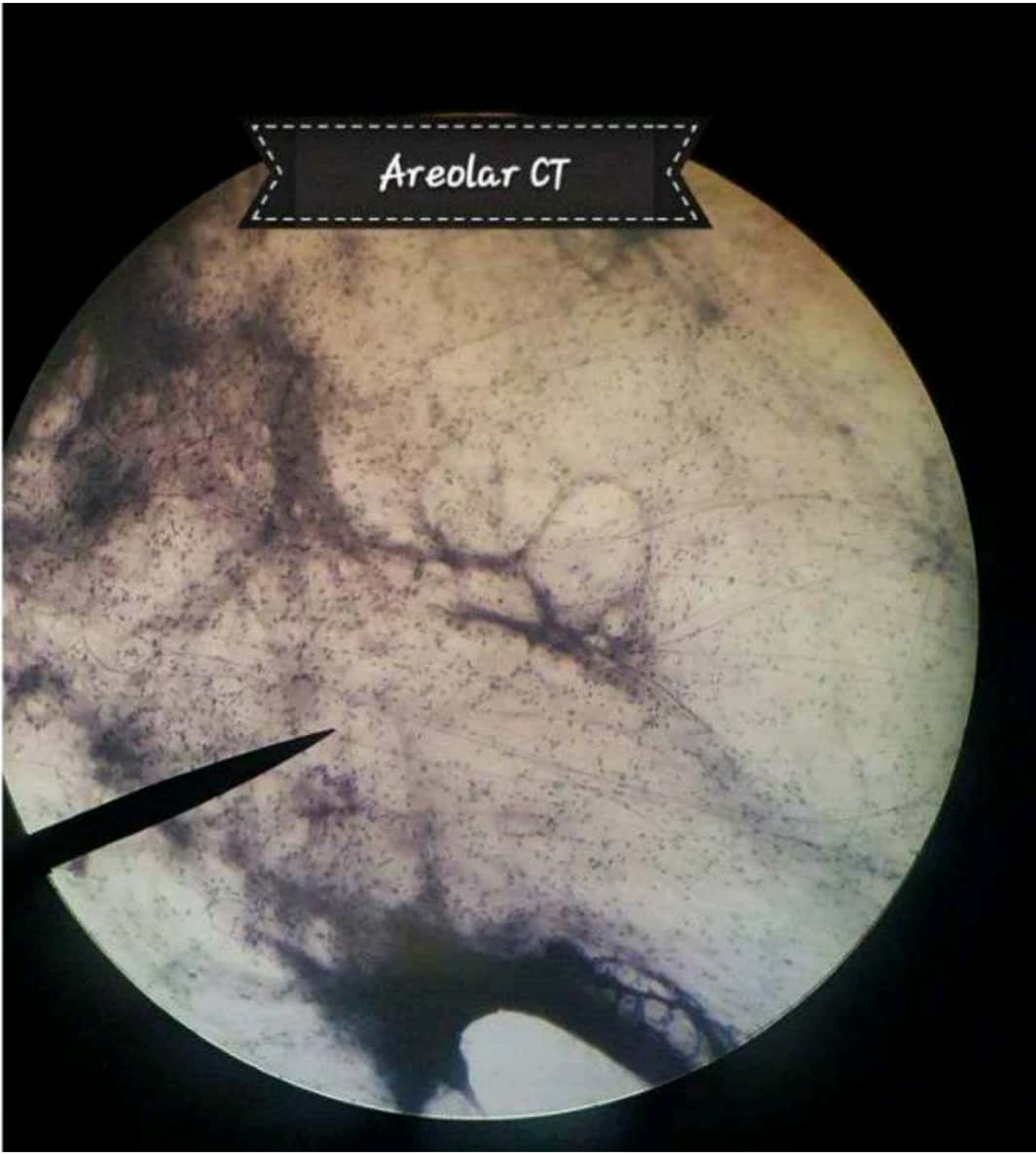

Cell Division. (H.P).
Metaphase
Cell Division. (H.P).
Prophase
Interphase

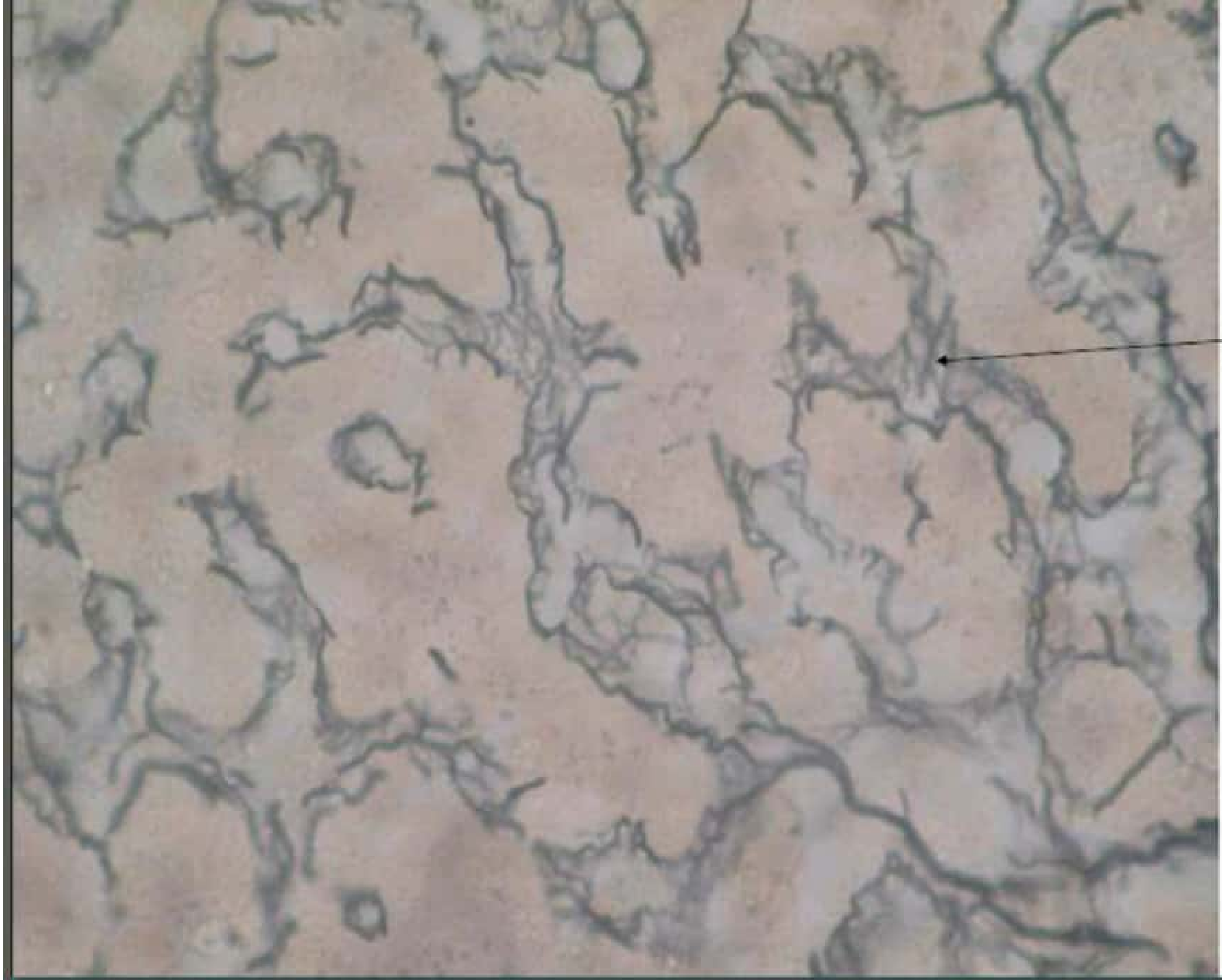

Nucleus
In:-
Subcutaneous

Areolar C.T. (H.P). special stain

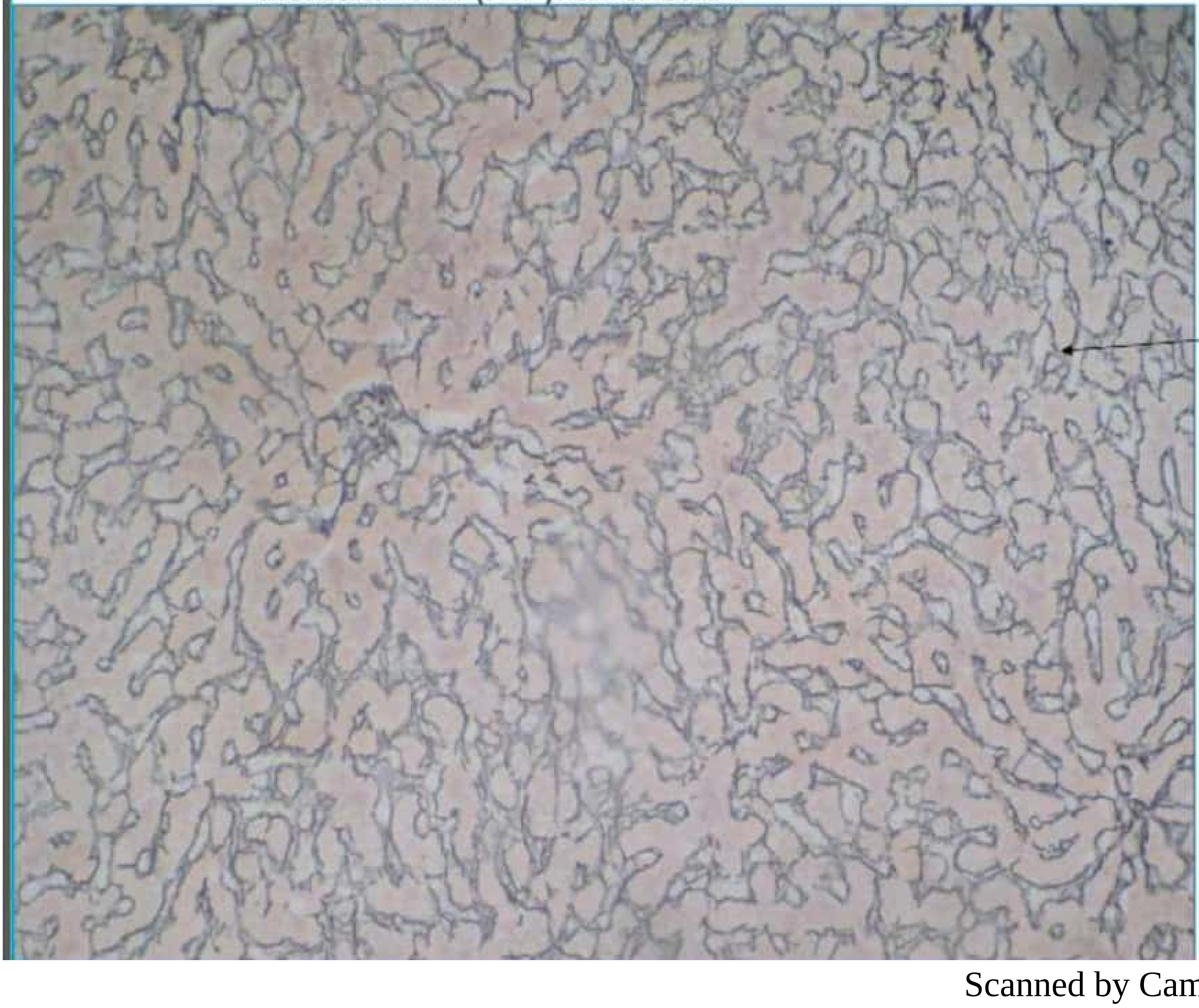

Elastic fibers
Collagen fibers
In:-
Subcutaneous

Scanned by CamScanner

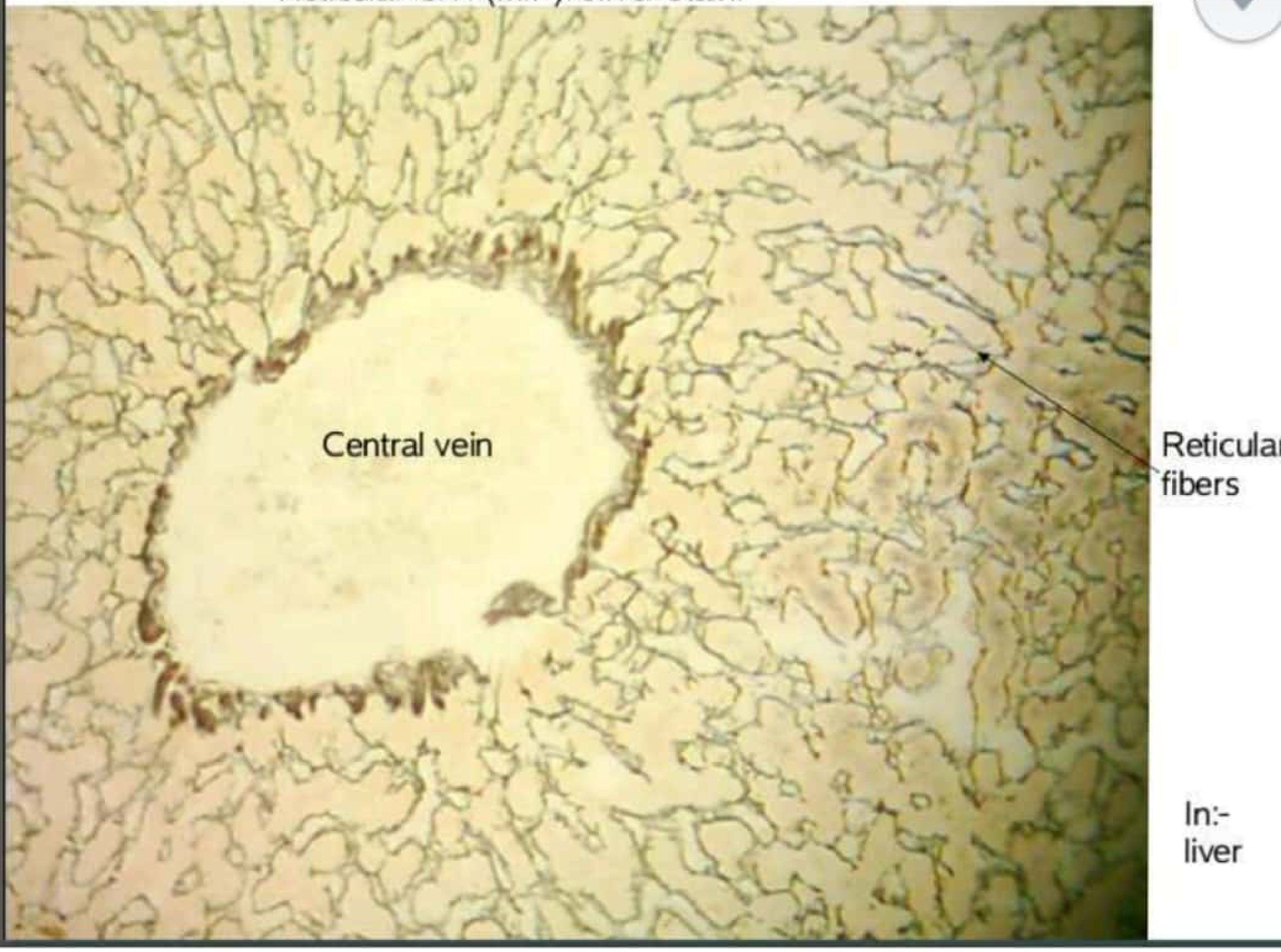

Areolar CT


Reticular fibers
In:- liver

Reticular C.T. (M.P). silver stain.

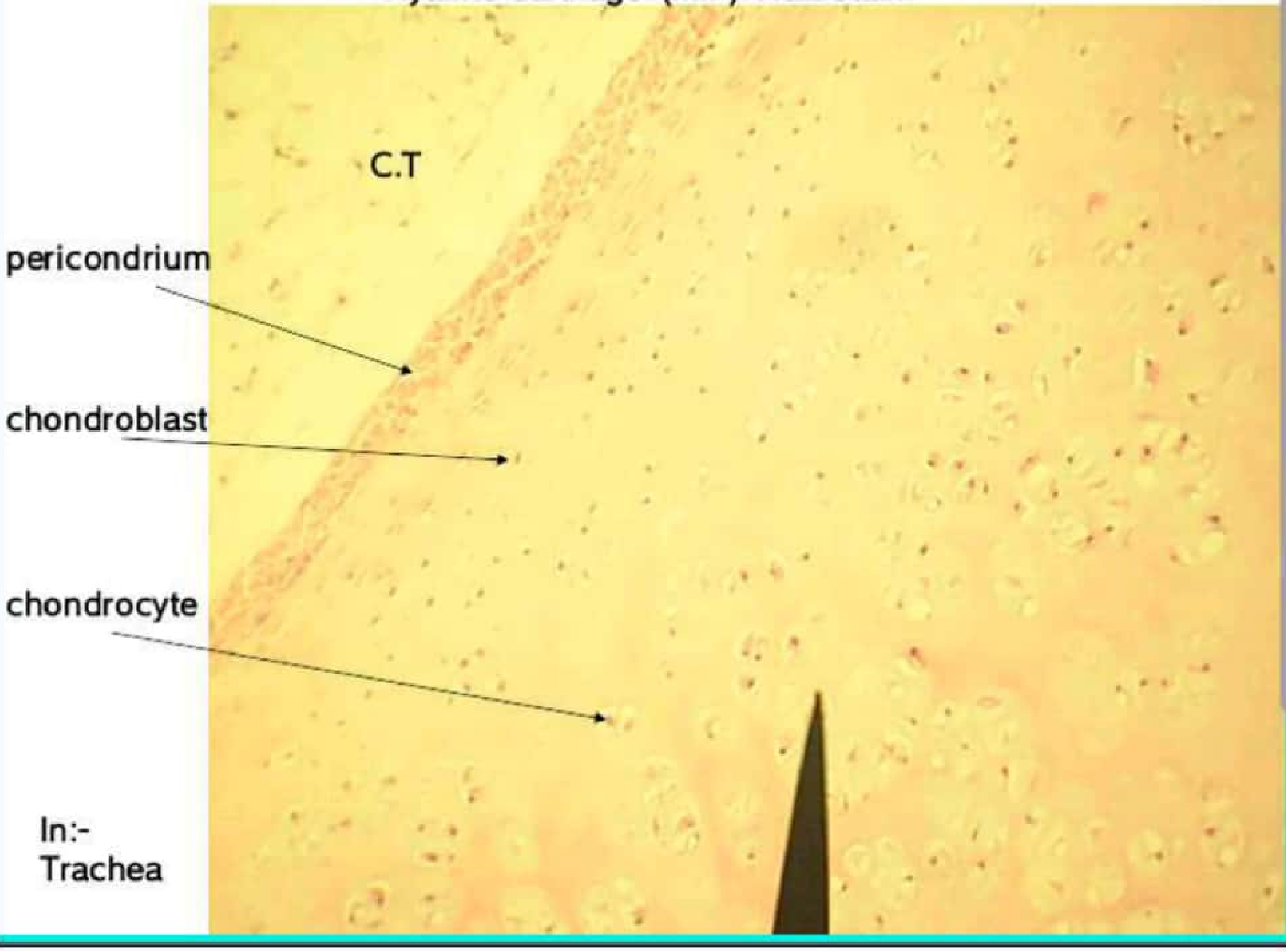

Reticular fibers
In:- liver

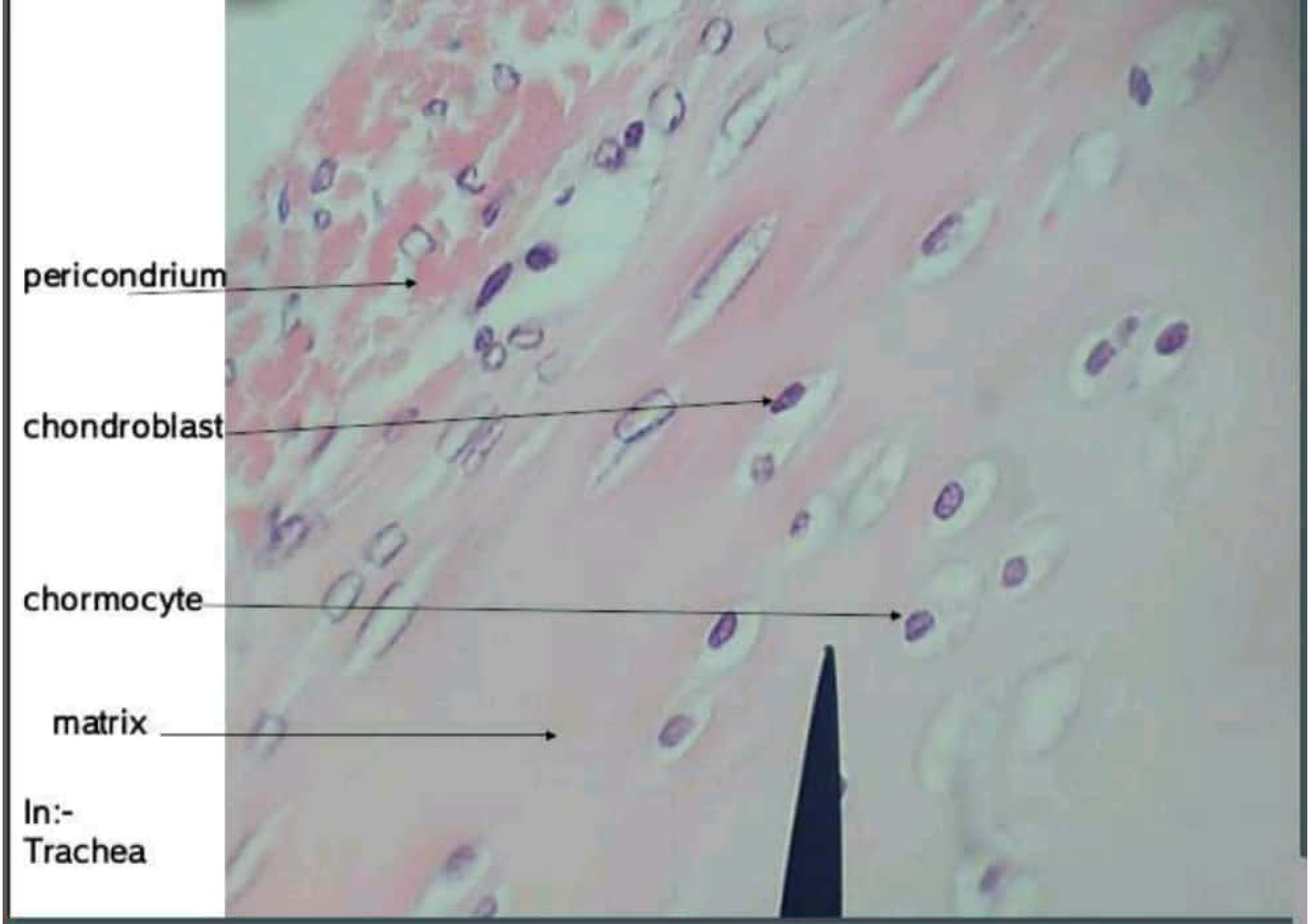
Reticular C.T. (M.P). silver stain.


Central vein
Reticular fibers
In:-
liver

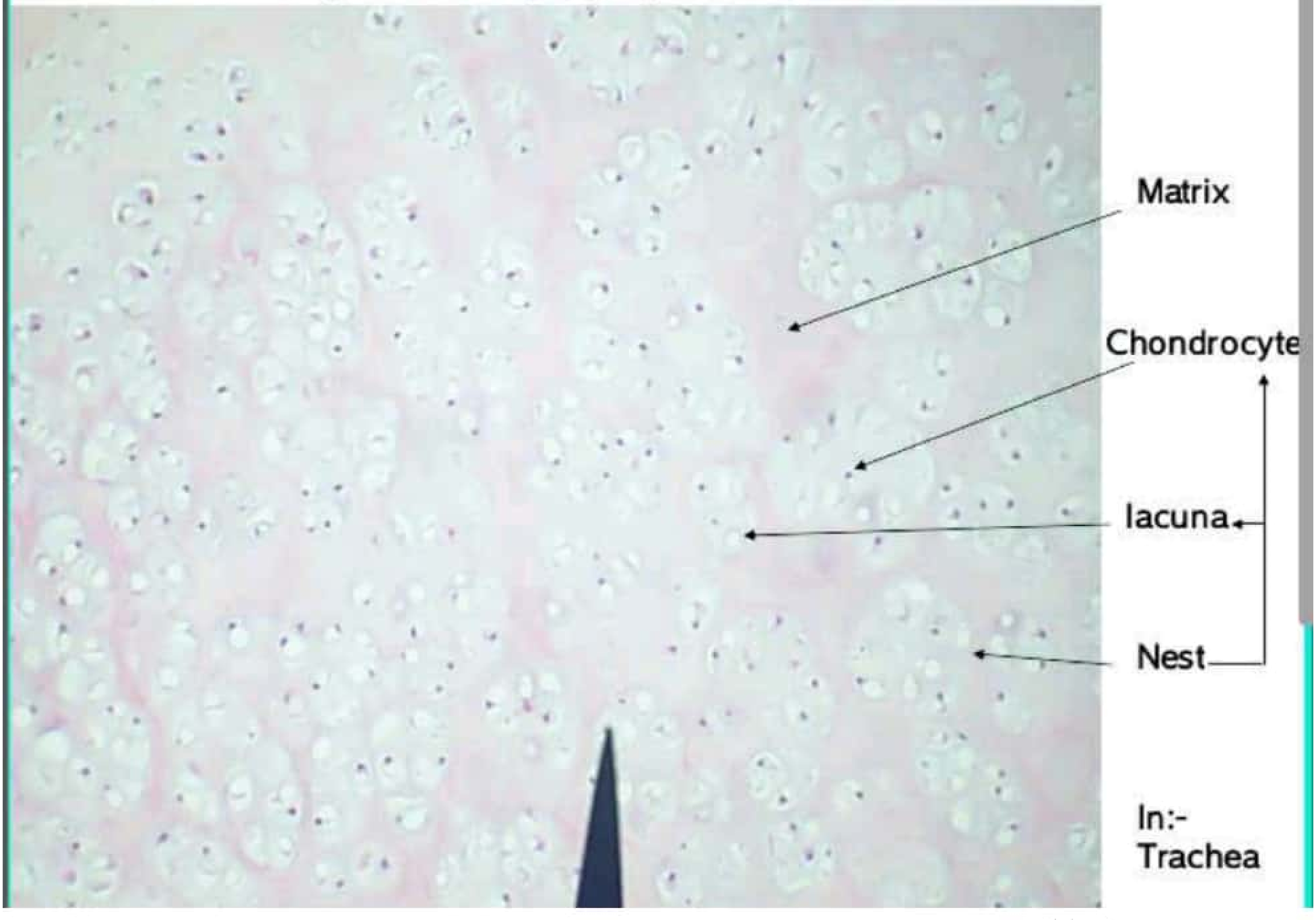
Scanned by CamScanner

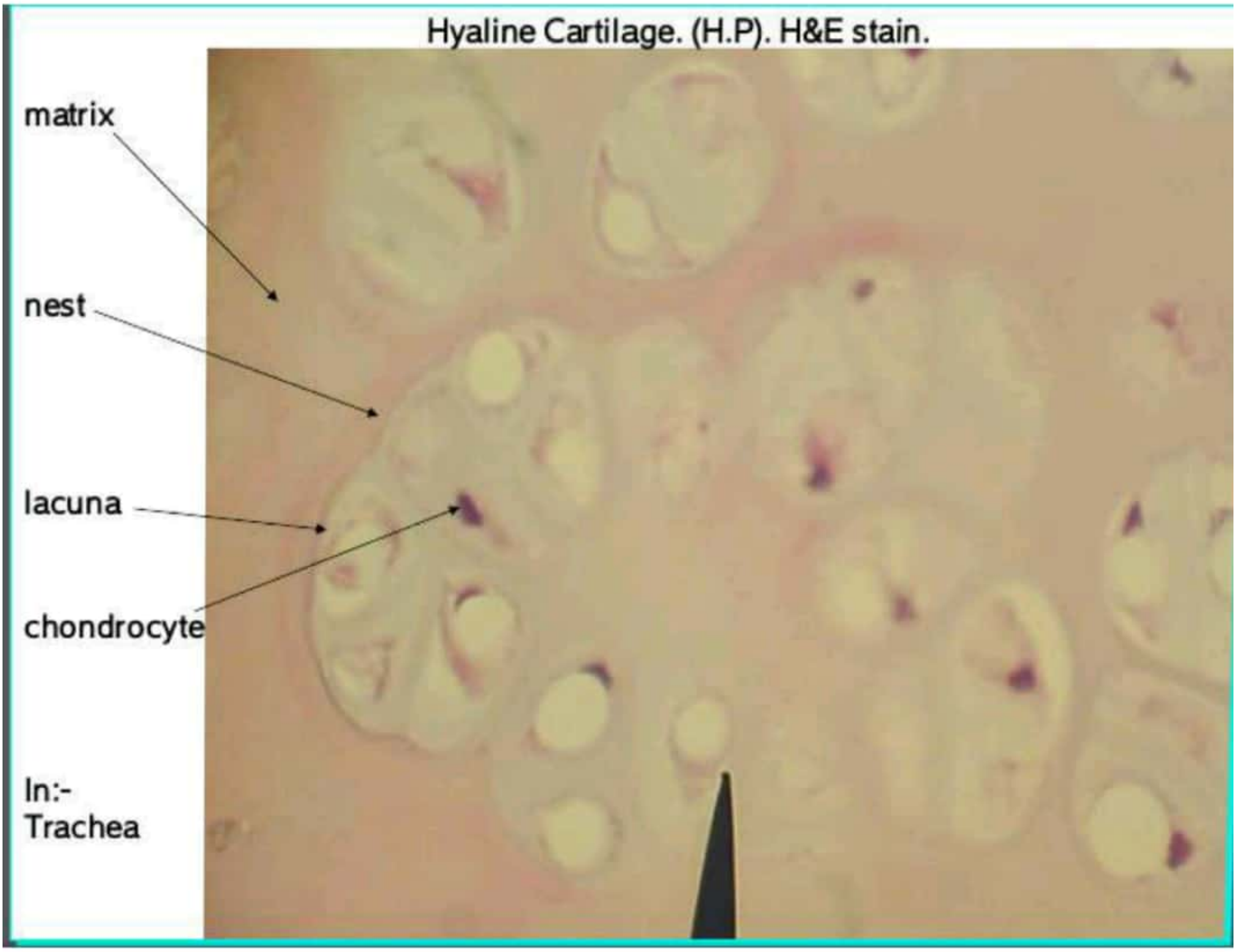
Hyaline Cartilage. (M.P). H&E stain.


C.T
pericondrium
chondroblast
chondrocyte
In:-
Trachea


pericondrium
chondroblast
chormocyte
matrix
In:-
Trachea

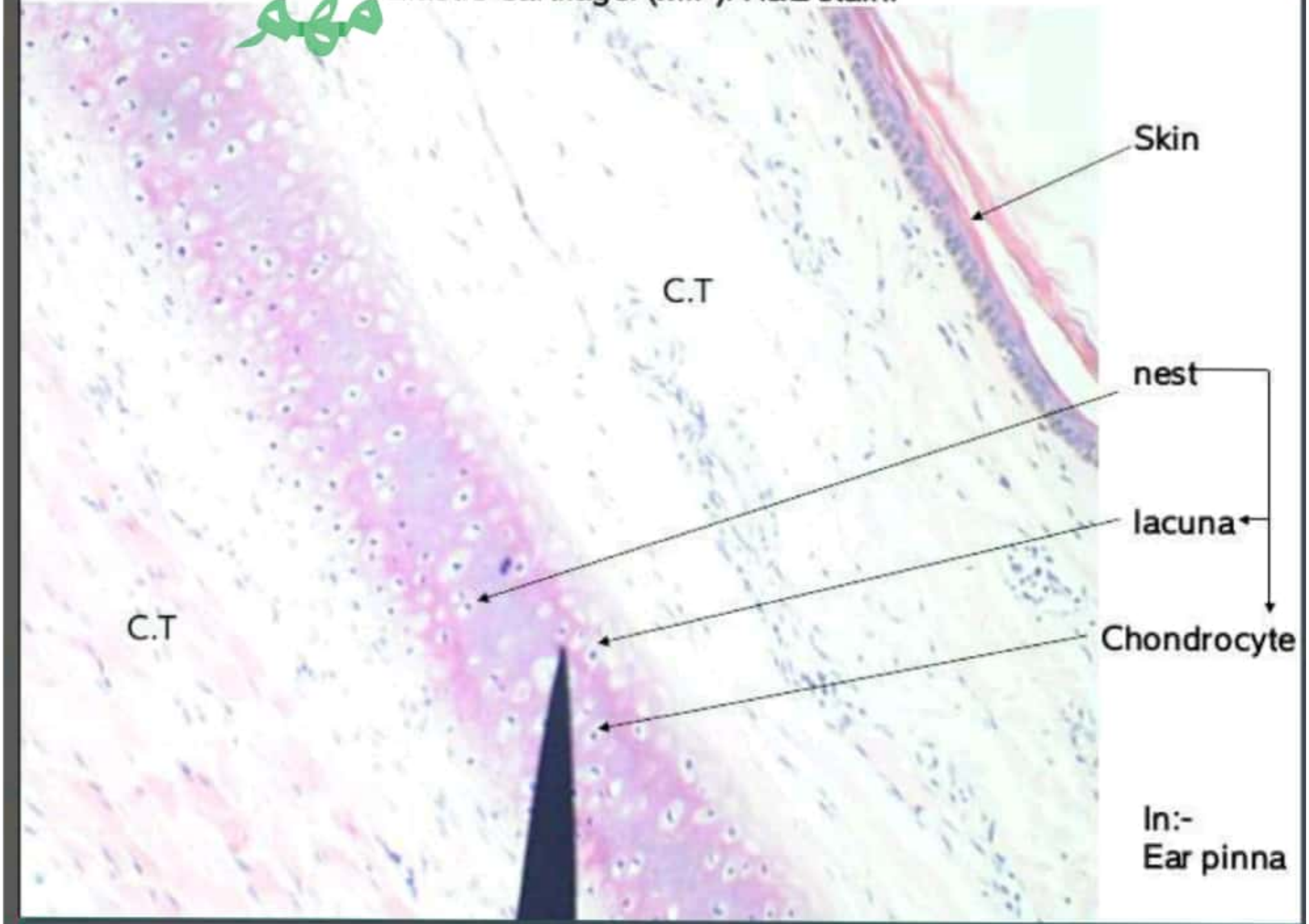
Hyaline Cartilage. (M.P). H&E stain.


Matrix
Chondrocyte
lacuna
Nest
In:-
Trachea

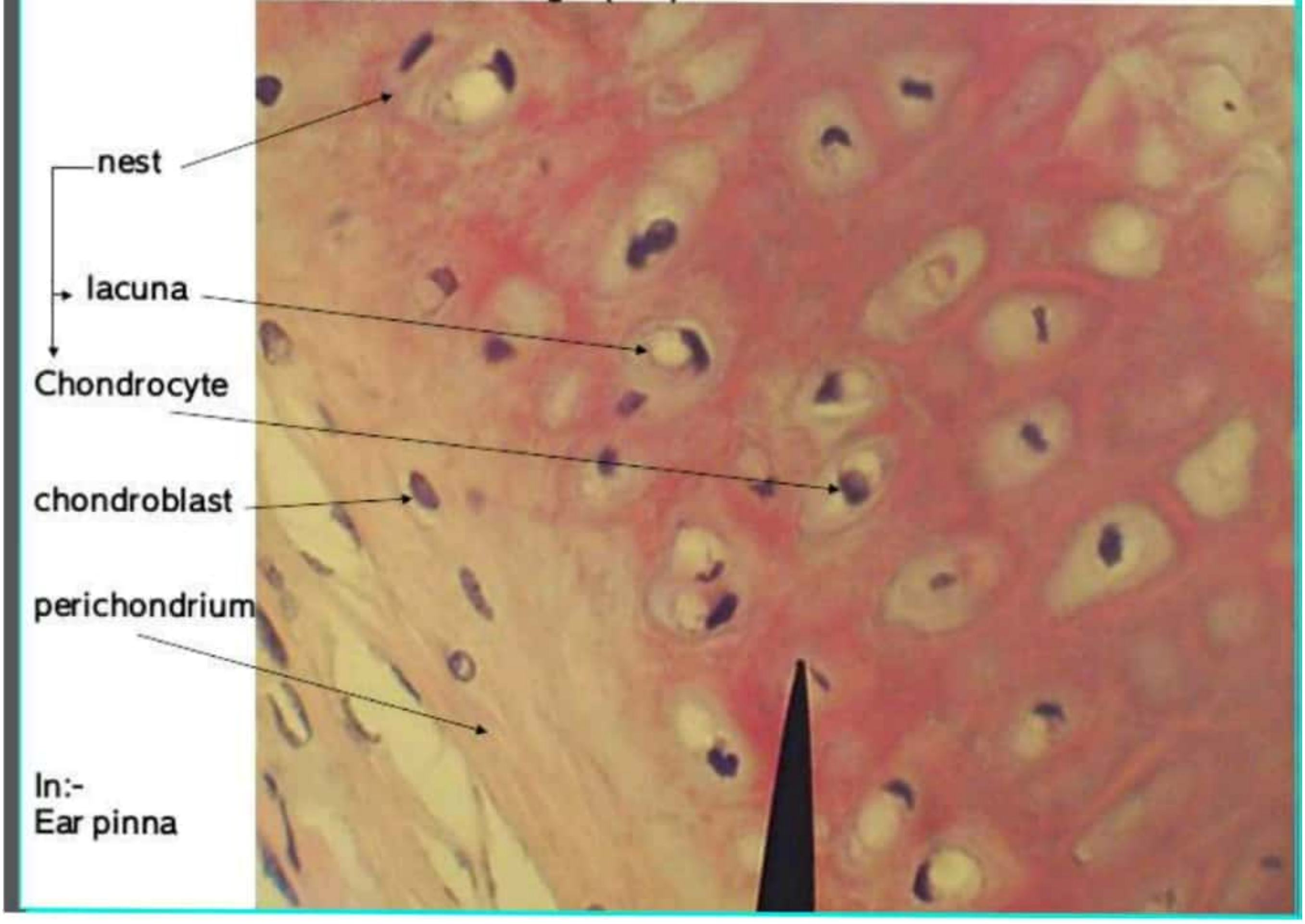

Hyaline Cartilage. (H.P). H&E stain.

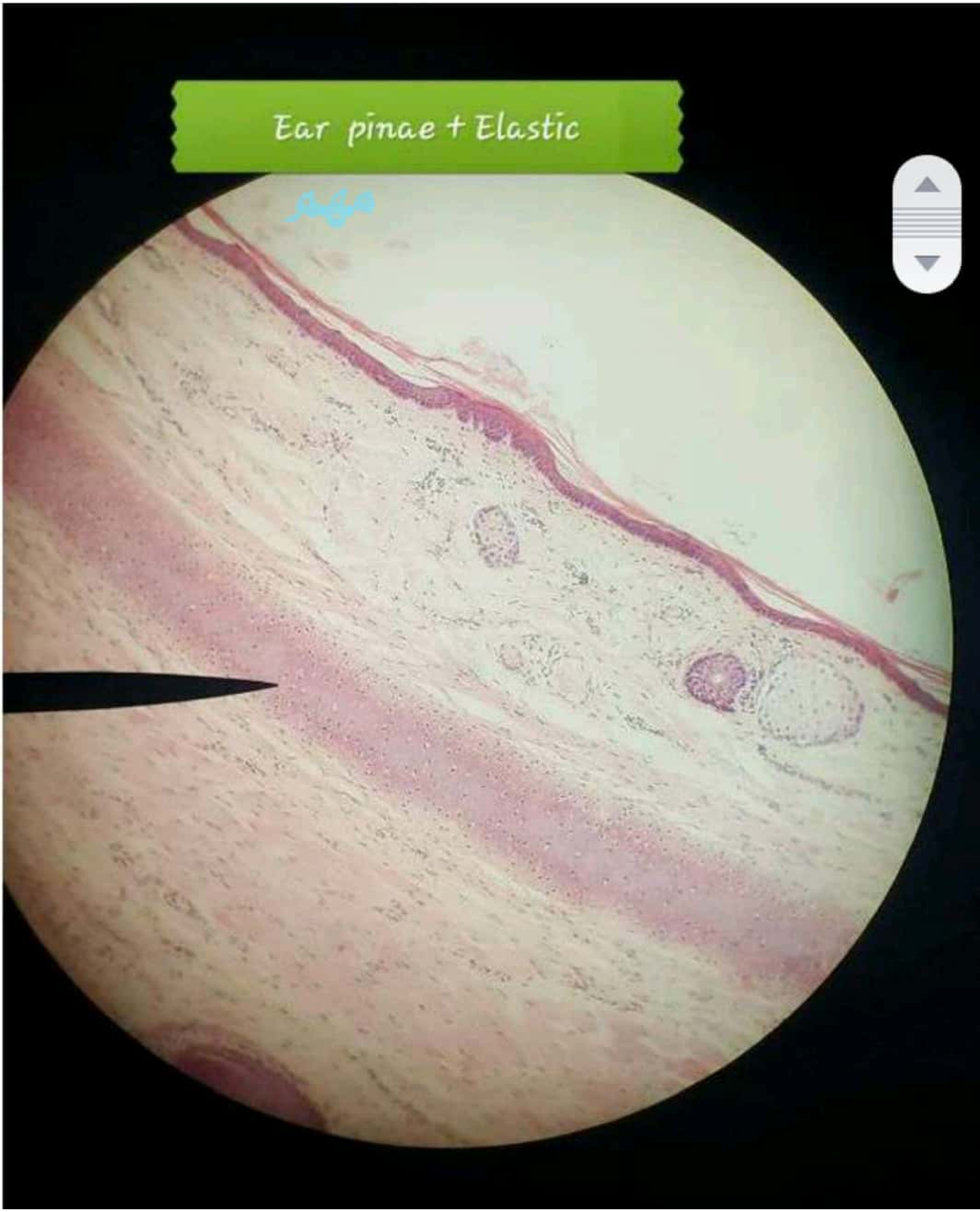
matrix
nest
lacuna
chondrocyte
In:-
Trachea

Elastic Cartilage. (M.P). H&E stain.


Skin
C.T
nest
lacuna
C.T
Chondrocyte
In:-
Ear pinna

Elastic Cartilage. (M.P). H&E stain.


nest
lacuna
Chondrocyte
chondroblast
perichondrium
In:-
Ear pinna


Ear pinae + Elastic

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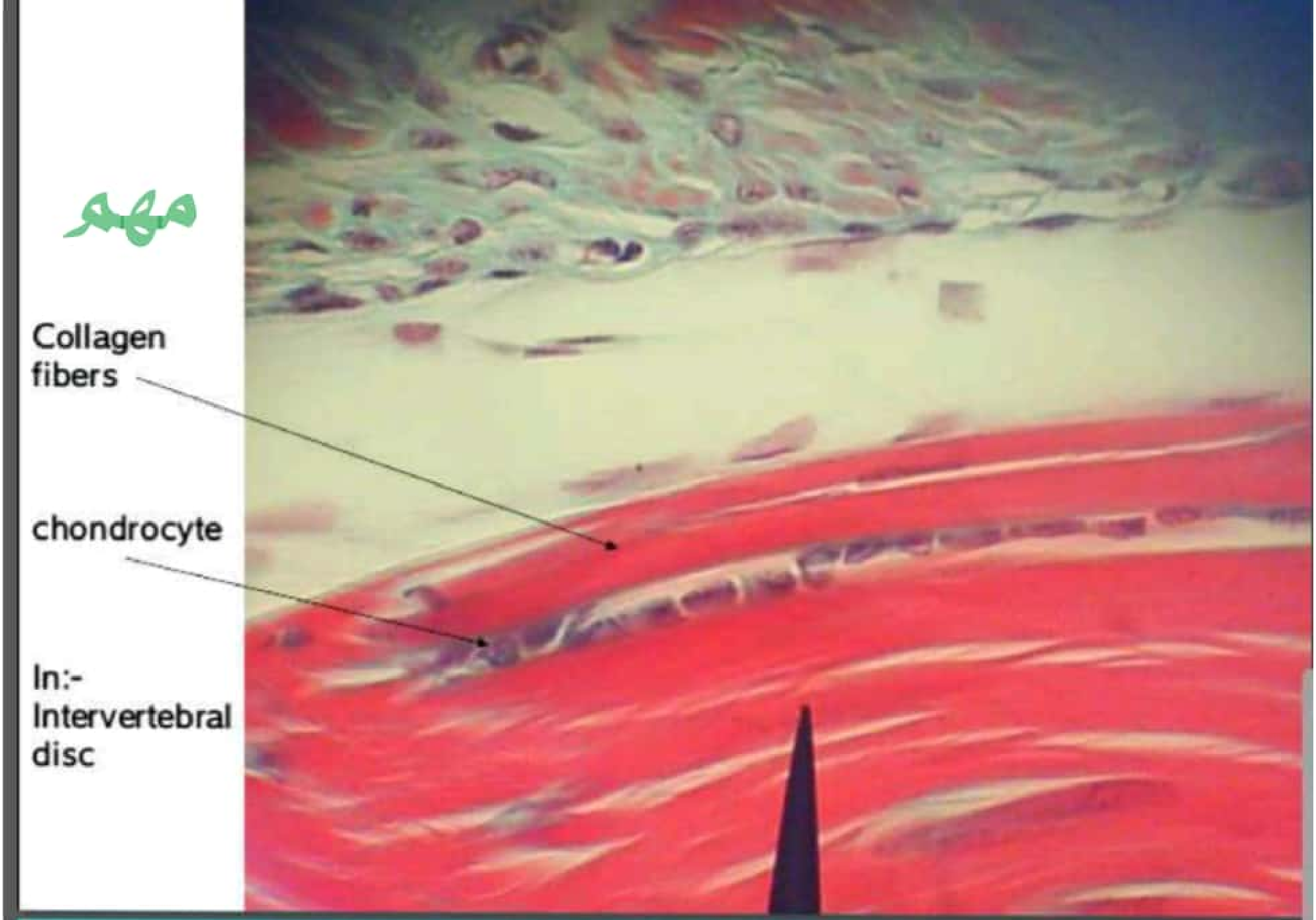
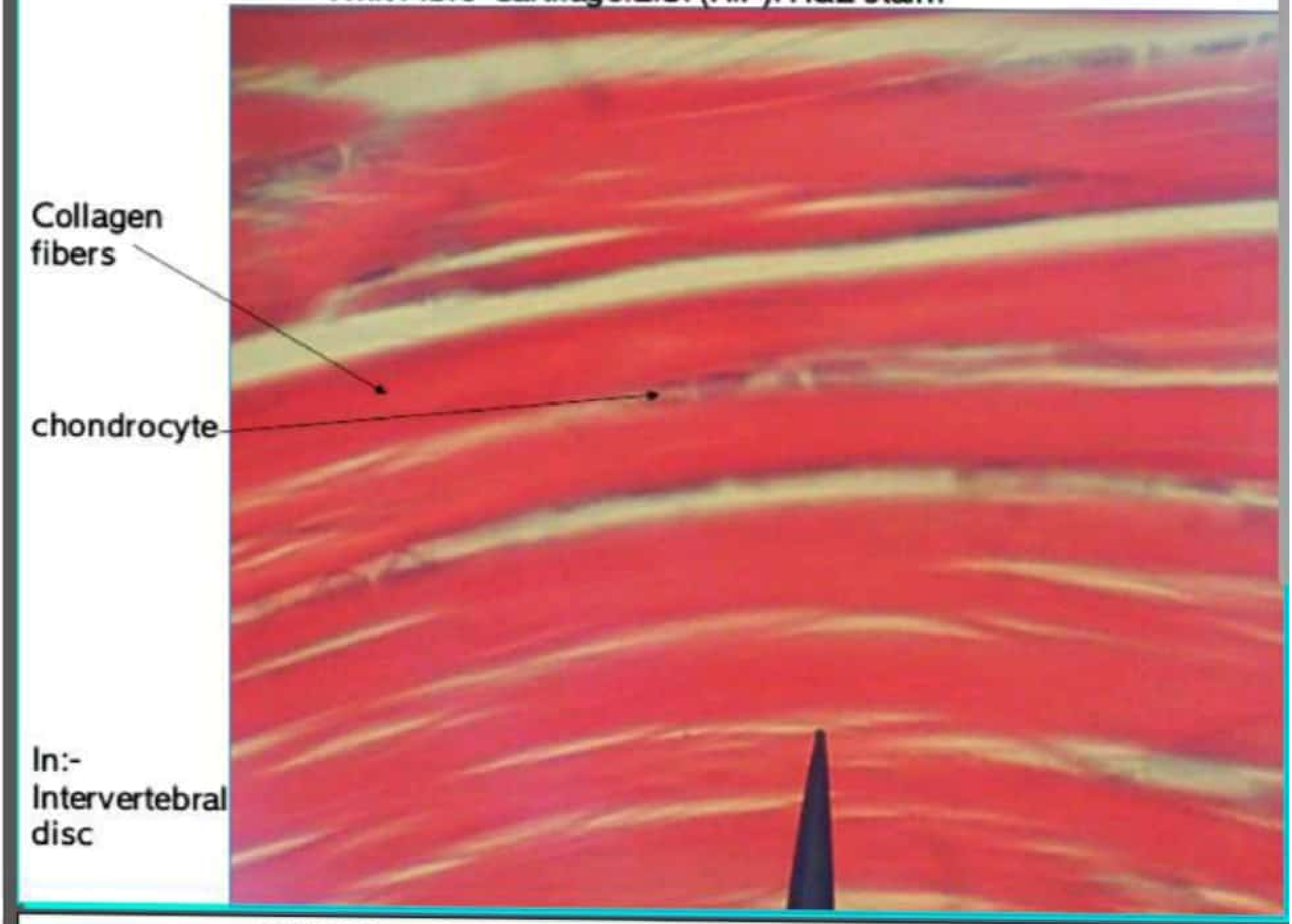

Collagen fibers
chondrocyte
In:- Intervertebral disc

Whit Fibro-Cartilage.L.S. (H.P). H&E stain.

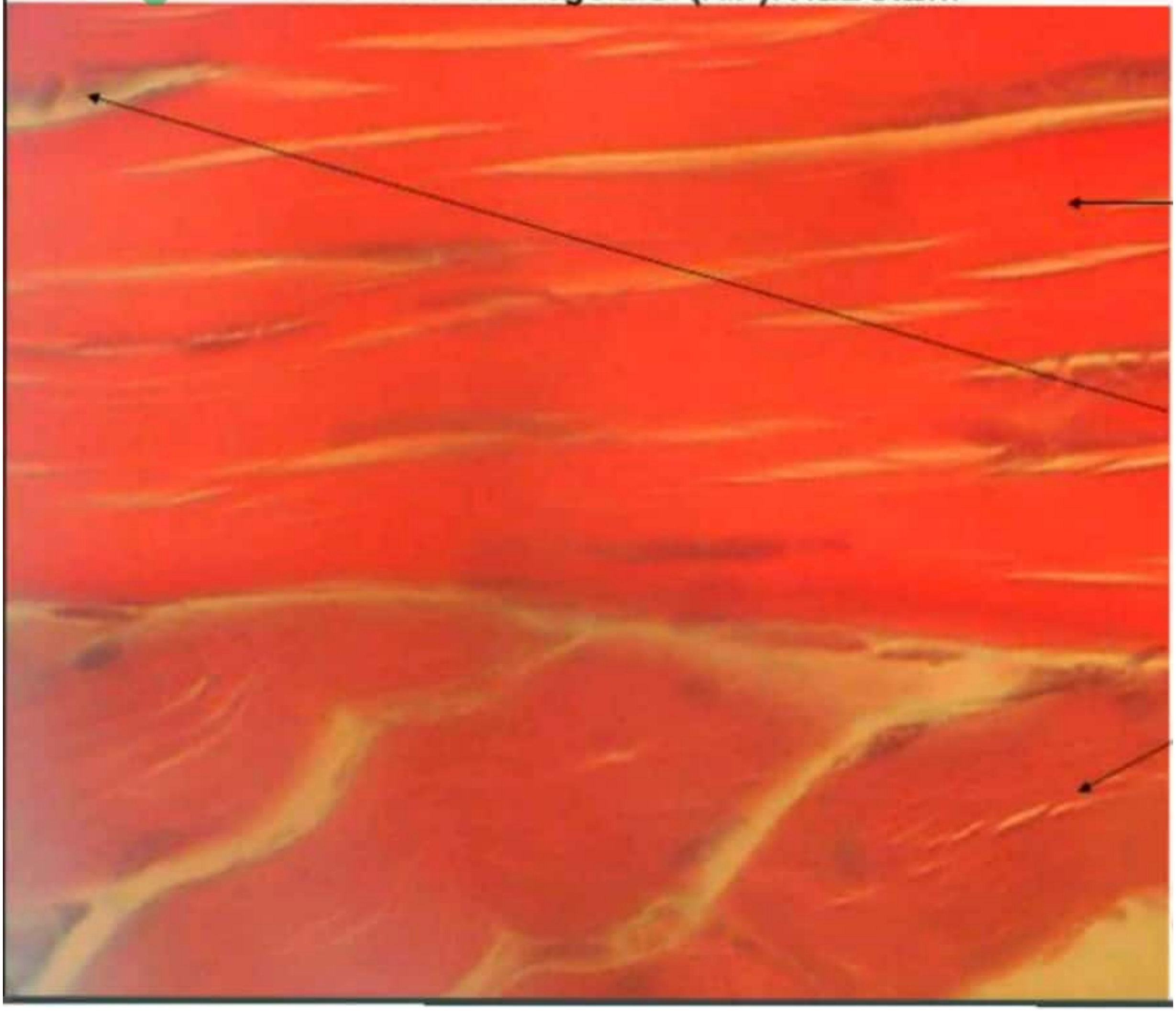

Collagen fibers
chondrocyte
In:- Intervertebral disc

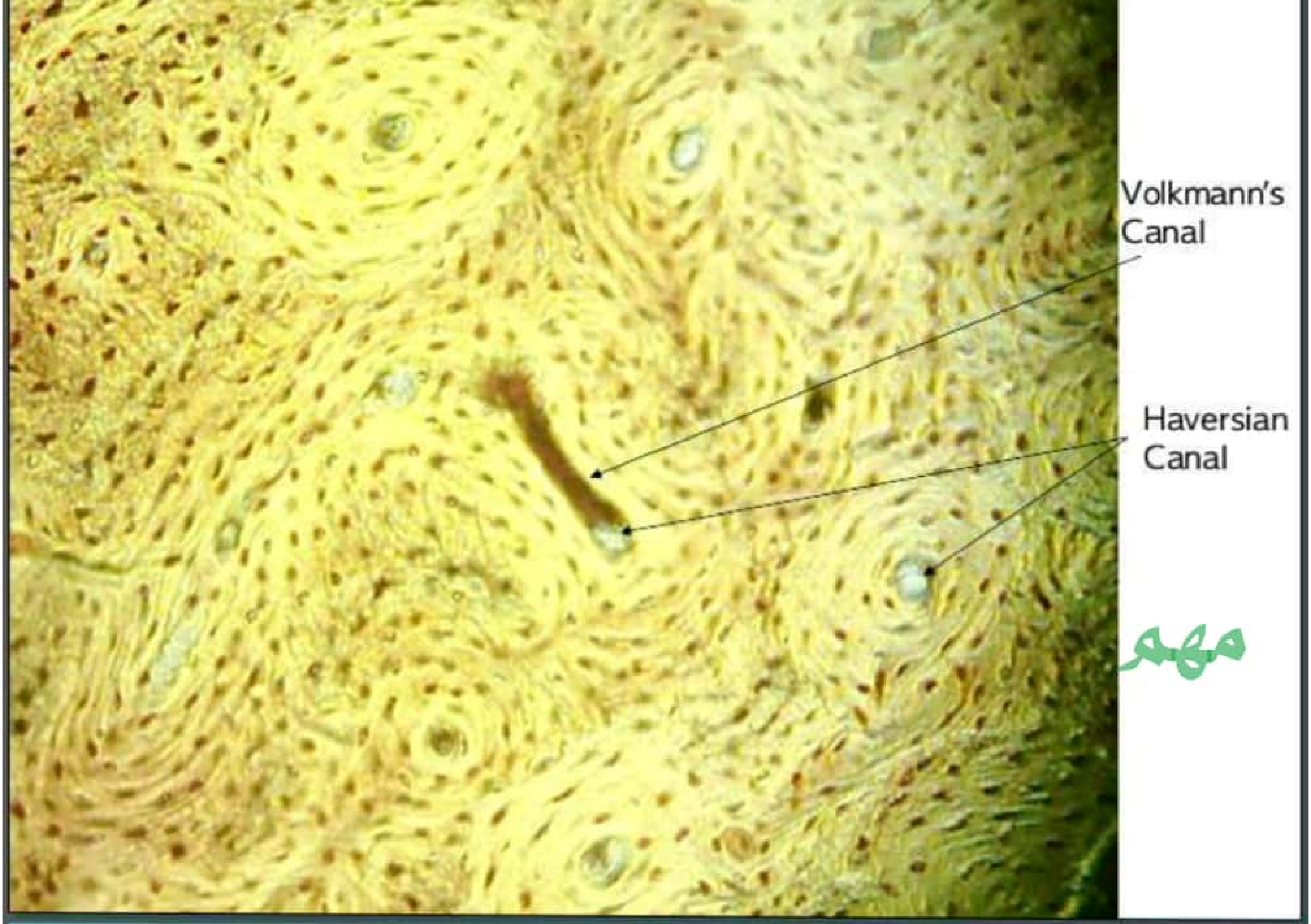
Whit Fibro-Cartilage.L.S. (H.P). H&E stain.

Whit Fibro-Cartilage.L.S. (H.P). H&E stain.

مهم

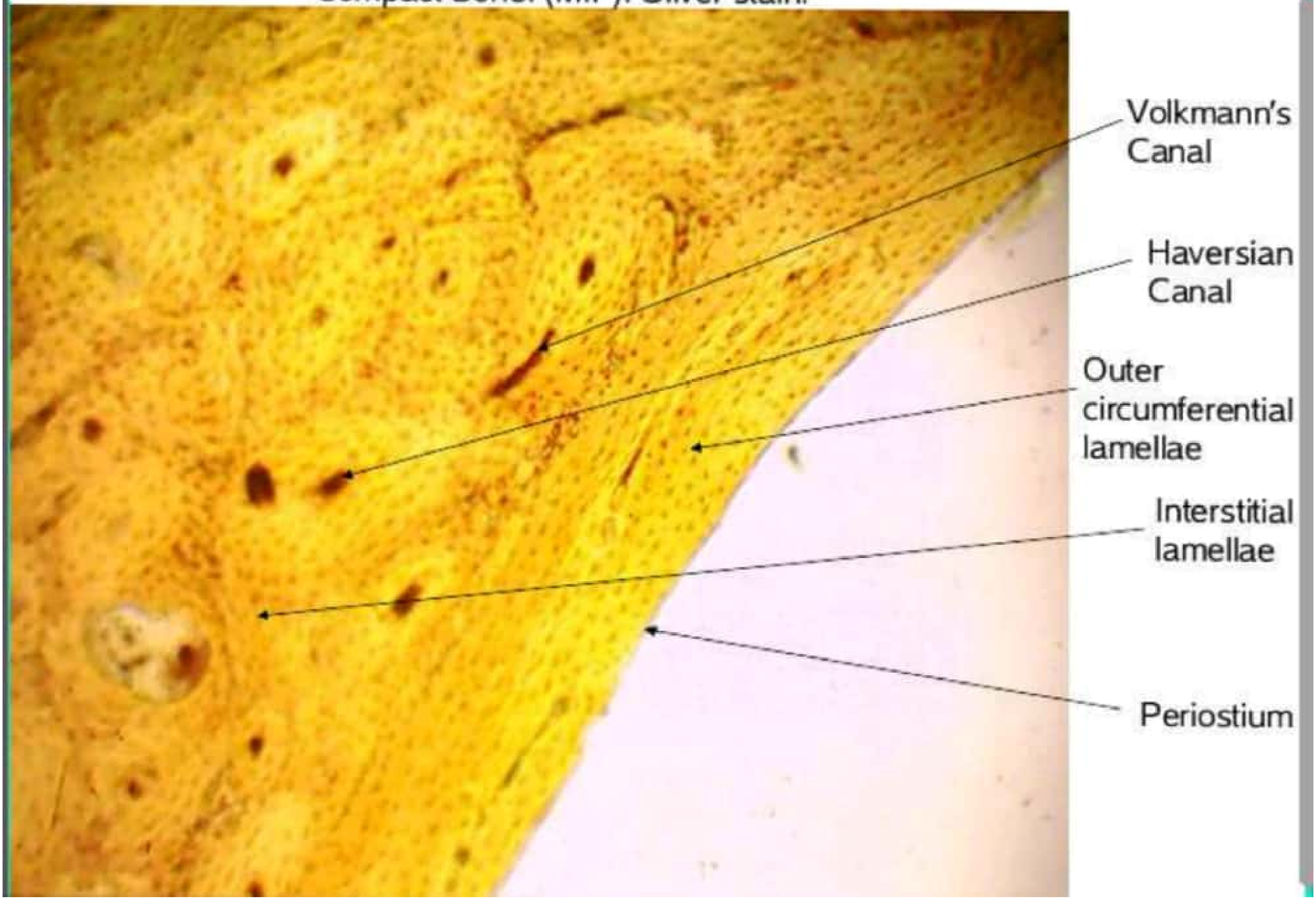
Whit Fibro-Cartilage.L.S. (H.P). H&E stain.

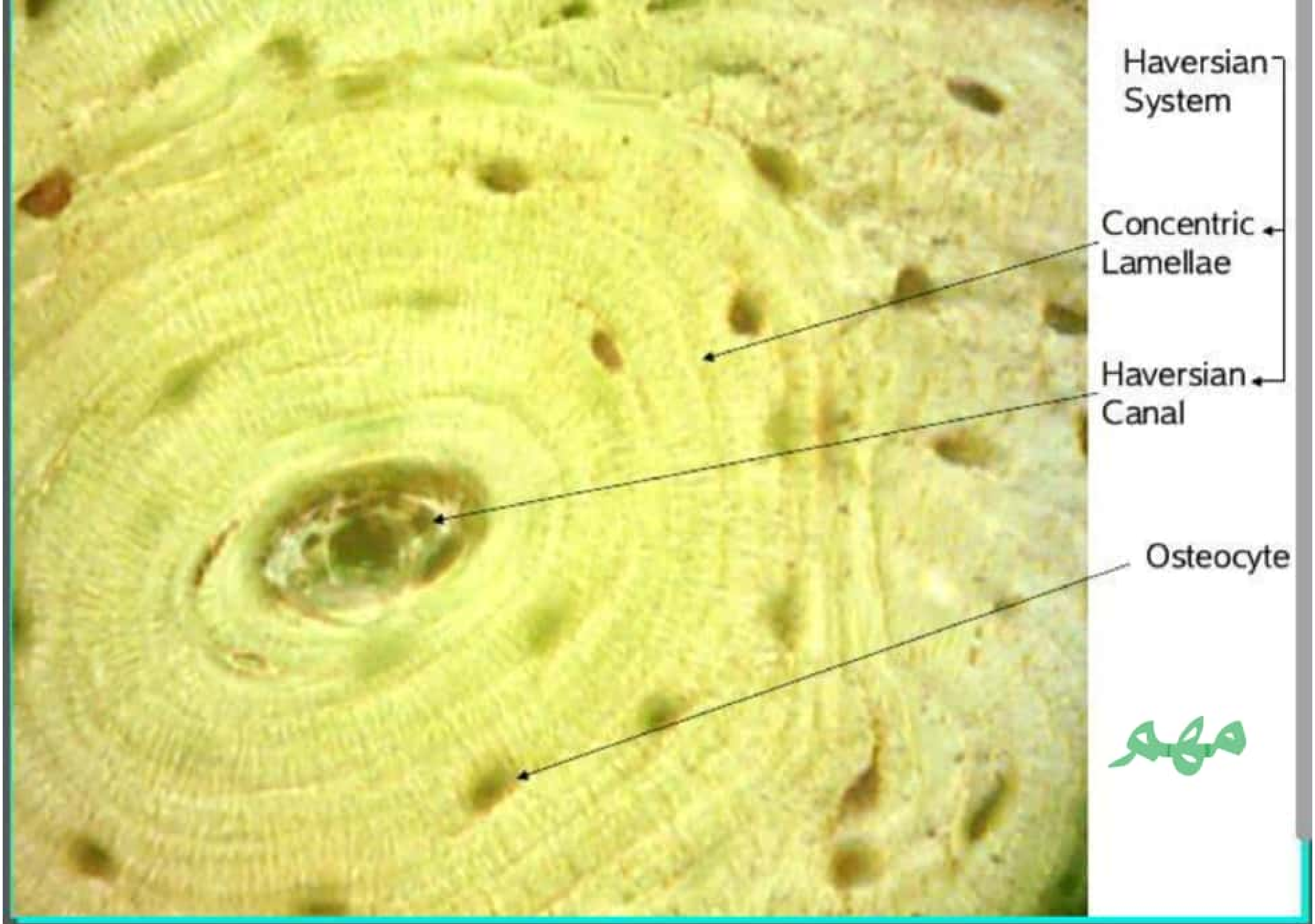



Volkmann's Canal
Haversian Canal

مهم

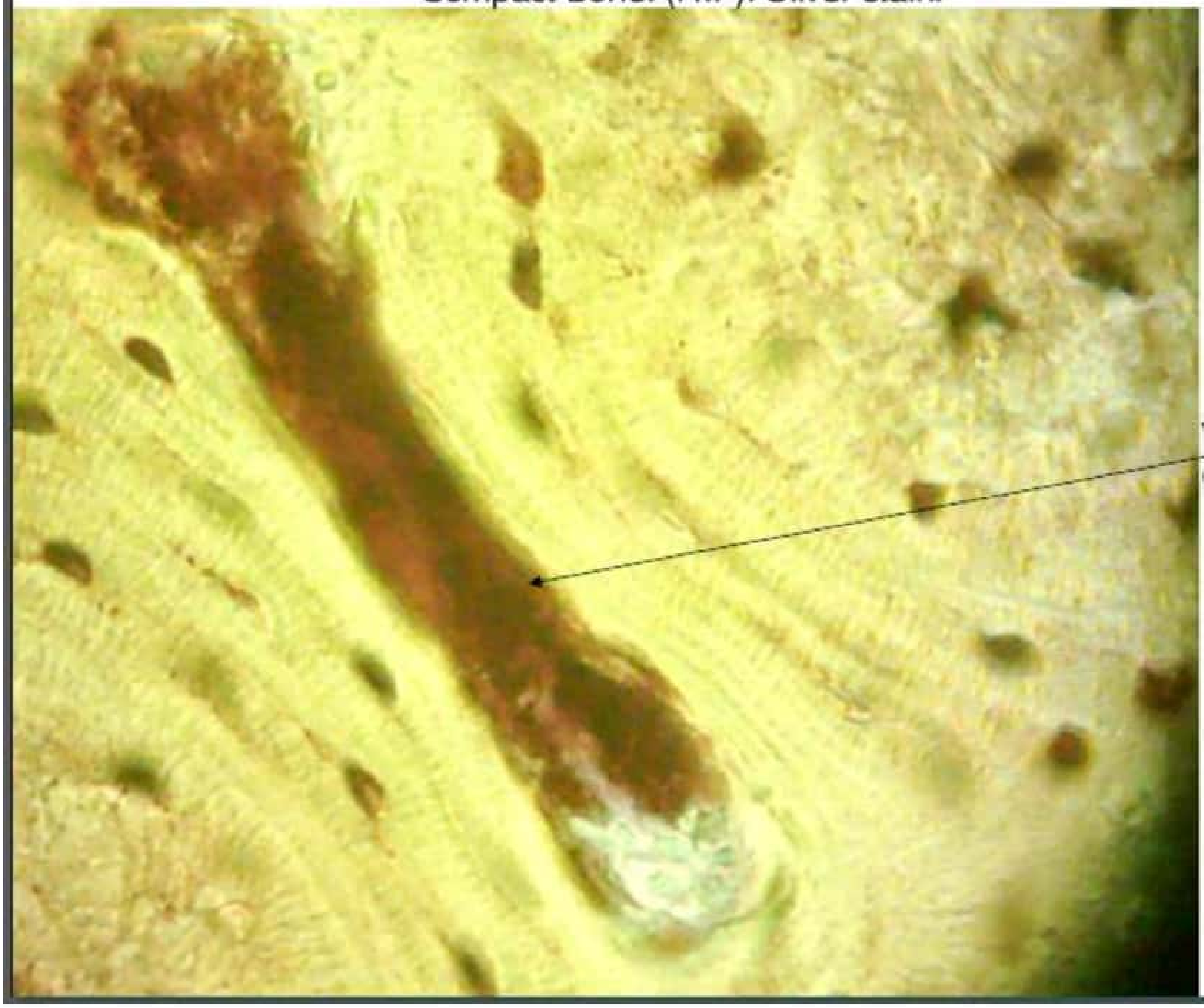
Compact Bone. (M.P). Silver stain.


Volkmann's Canal
Haversian Canal
Outer circumferential lamellae
Interstitial lamellae
Periostium

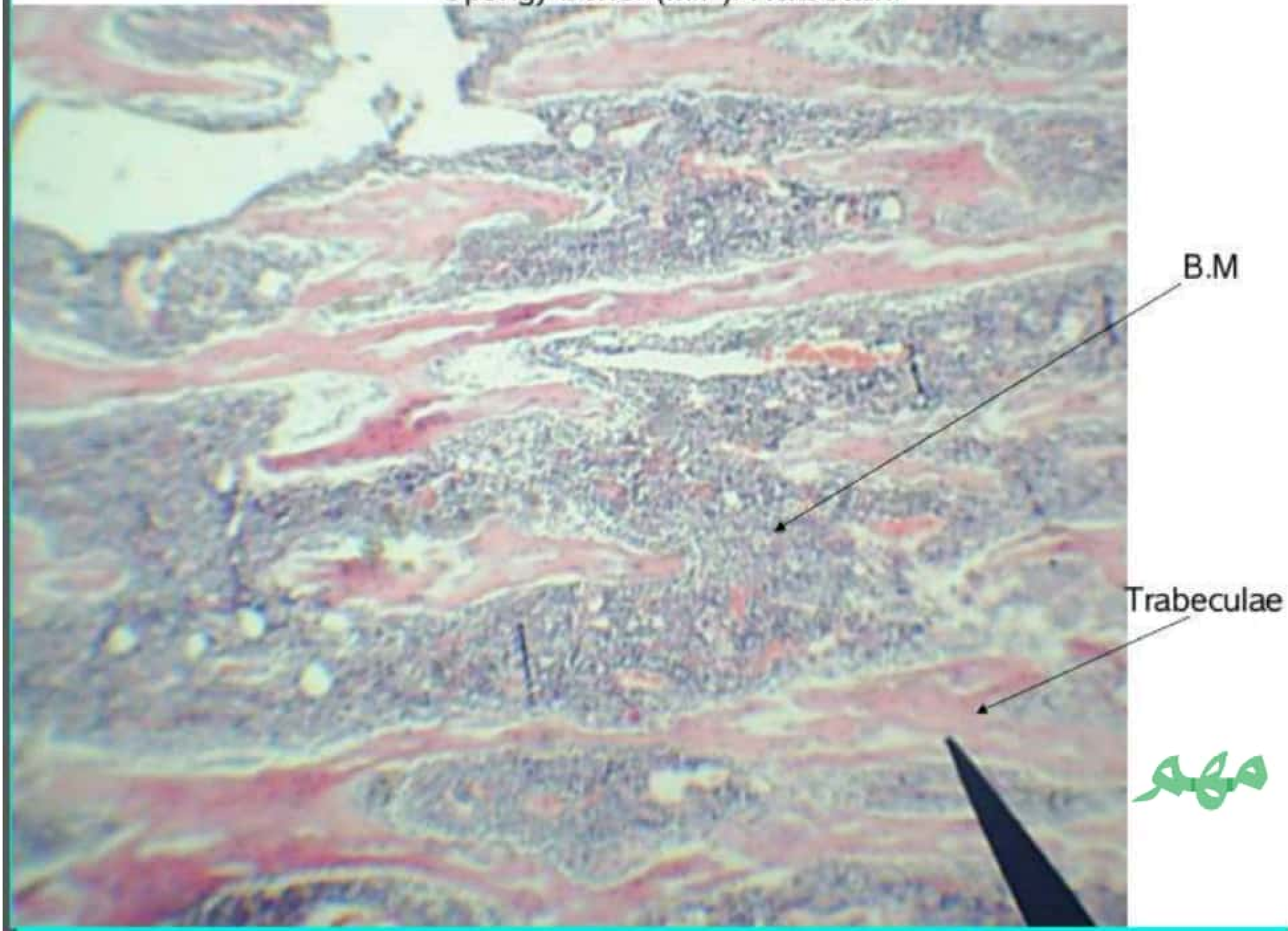

Haversian System
Concentric Lamellae
Haversian Canal
Osteocyte

مهم

Compact Bone. (H.P). Silver stain.

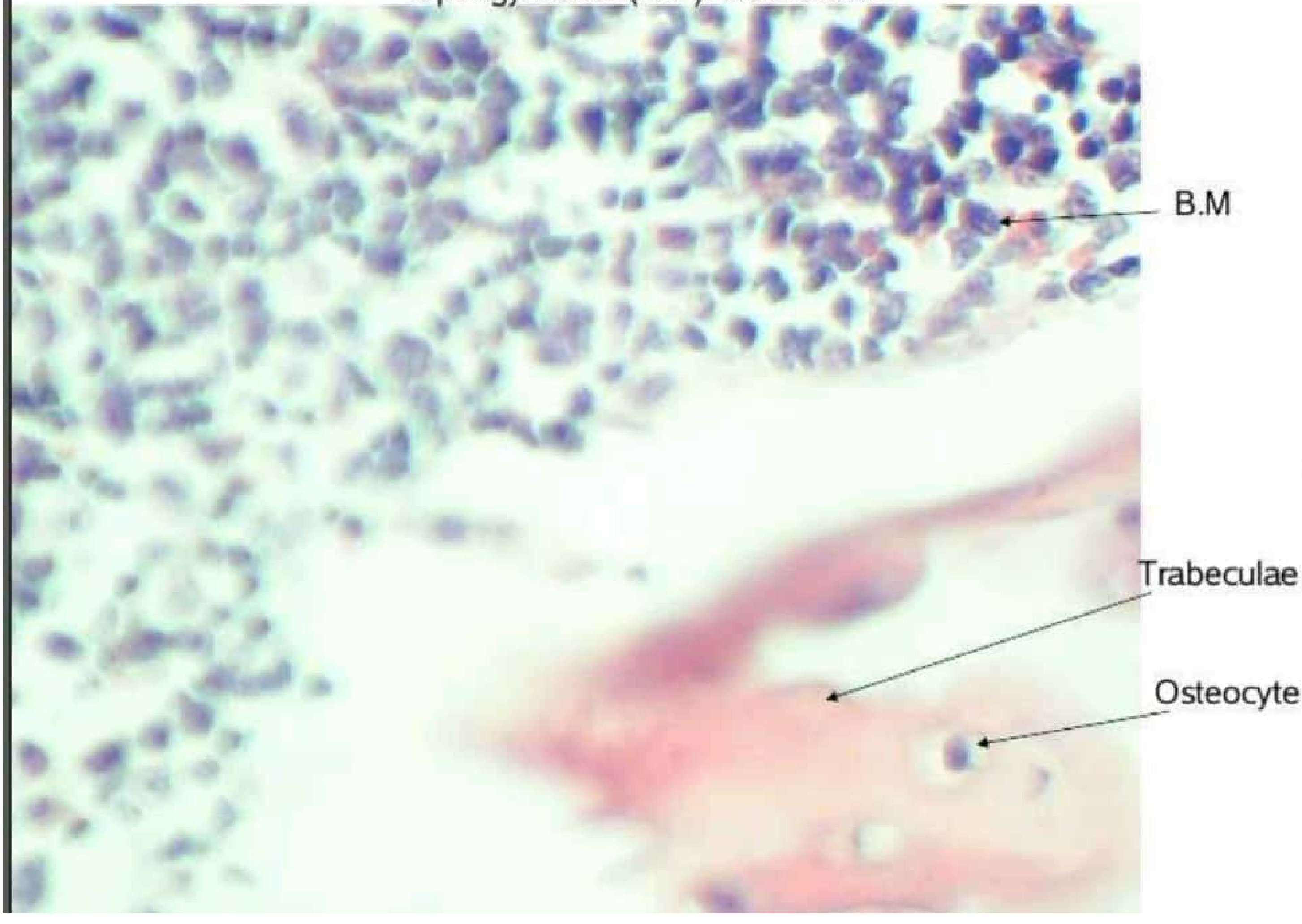

Volkmann's Canal

Spongy Bone. (M.P). H&E stain.

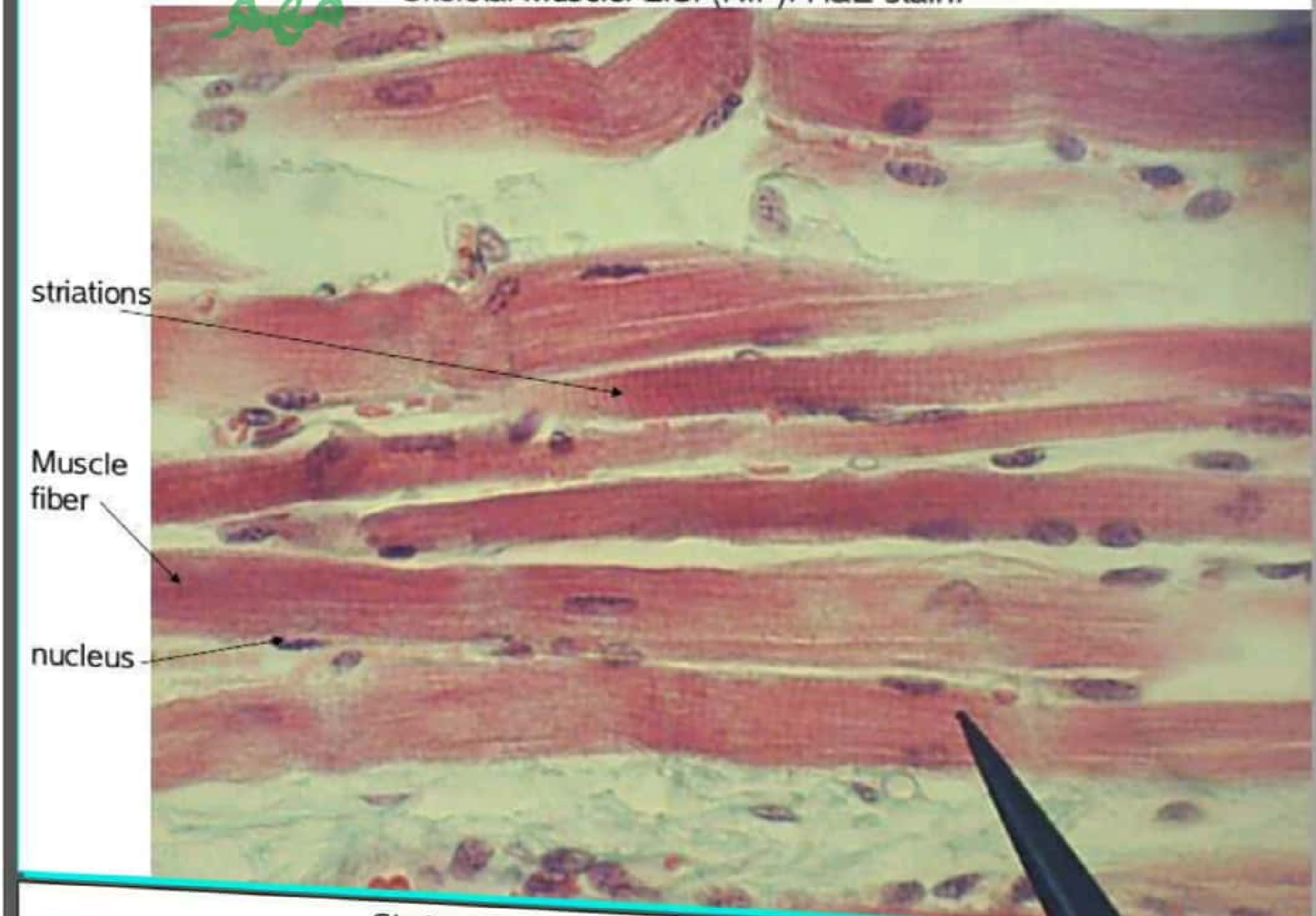

B.M
Trabeculae

مهم

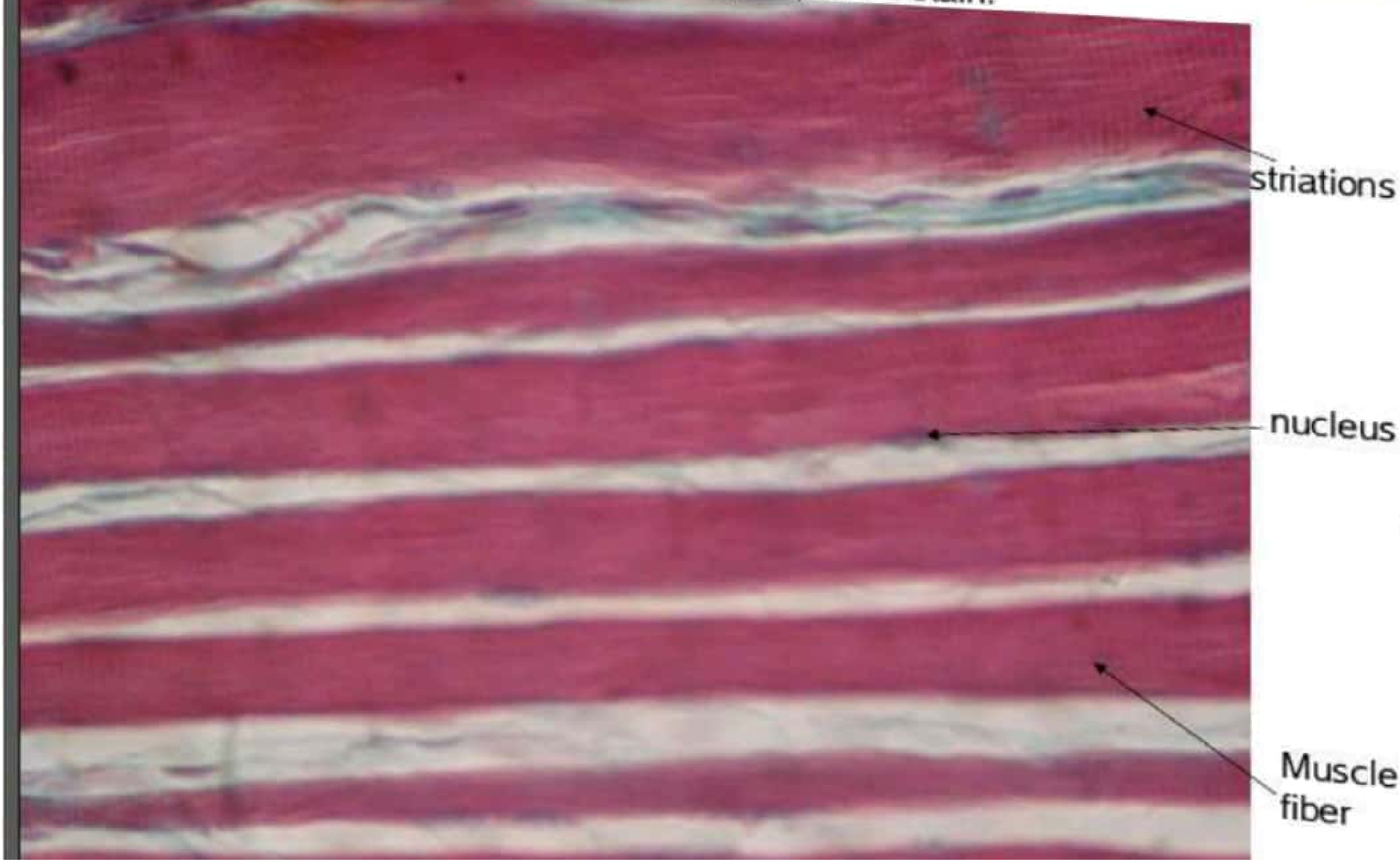
Spongy Bone. (H.P). H&E stain.


B.M
Trabeculae
Osteocyte

Skeletal Muscle. L.S. (H.P). H&E stain.

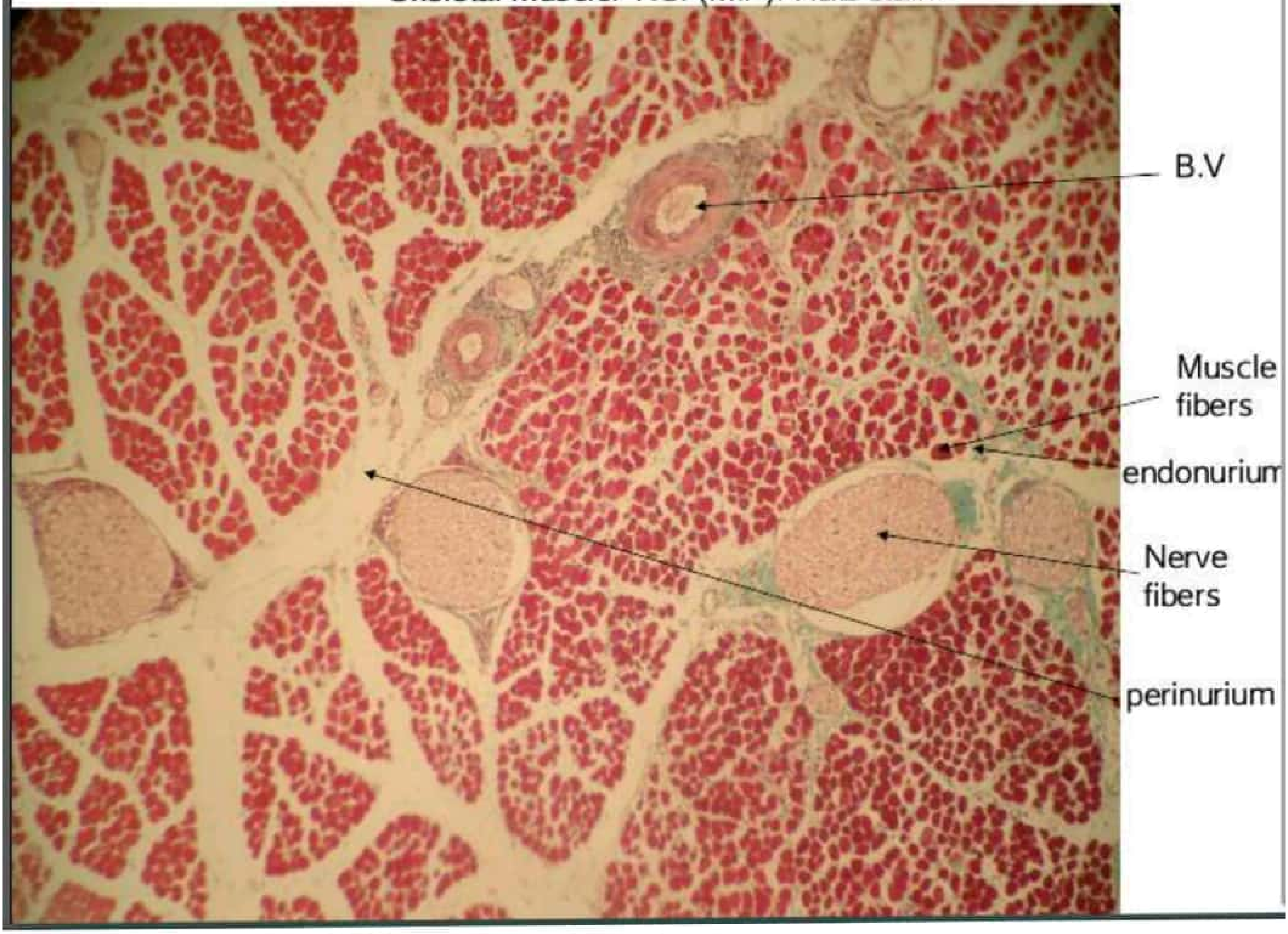

striations
Muscle fiber
nucleus

Skeletal Muscle. L.S. (H.P). H&E stain.

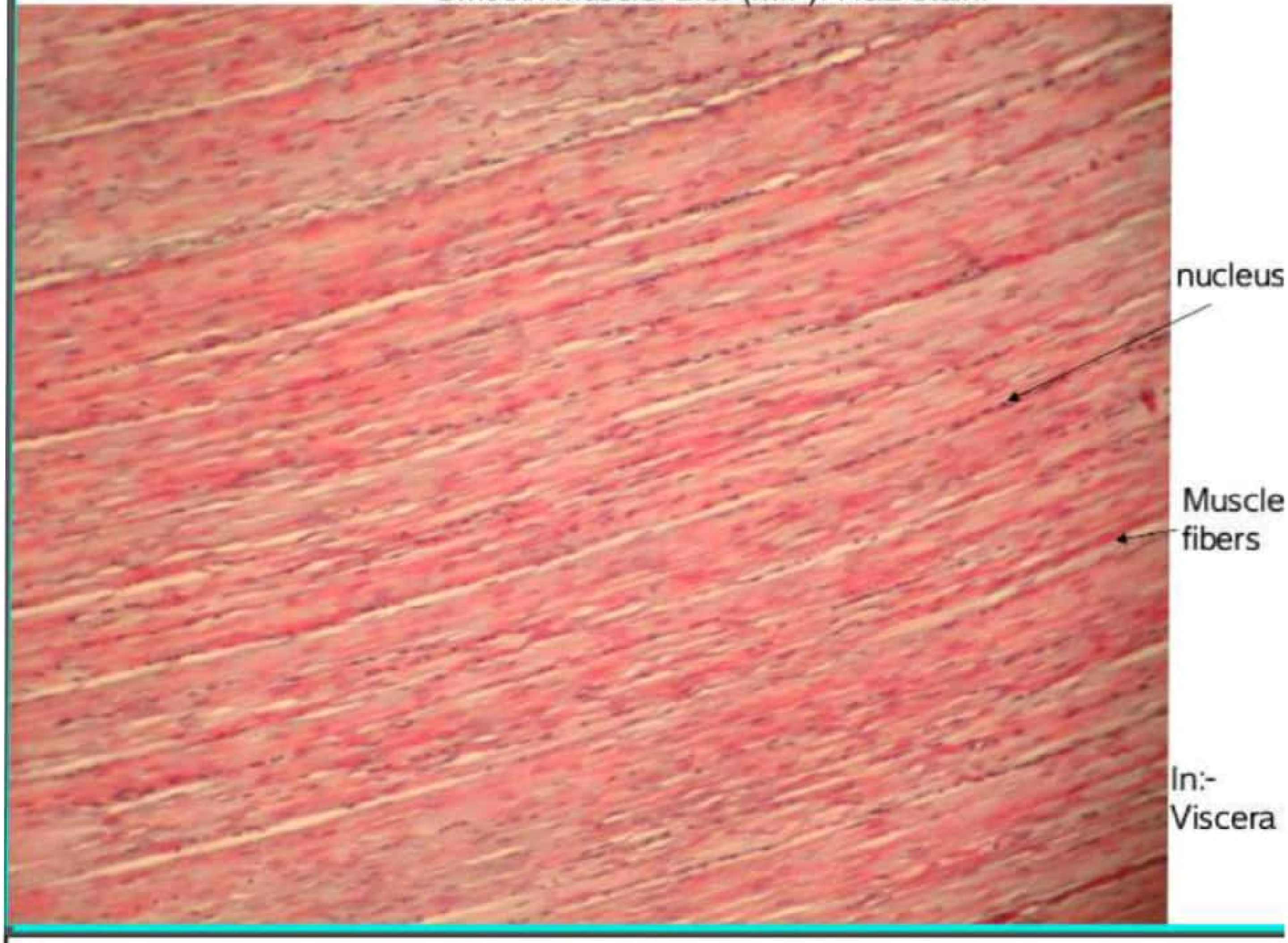

striations
nucleus
Muscle fiber

مهم

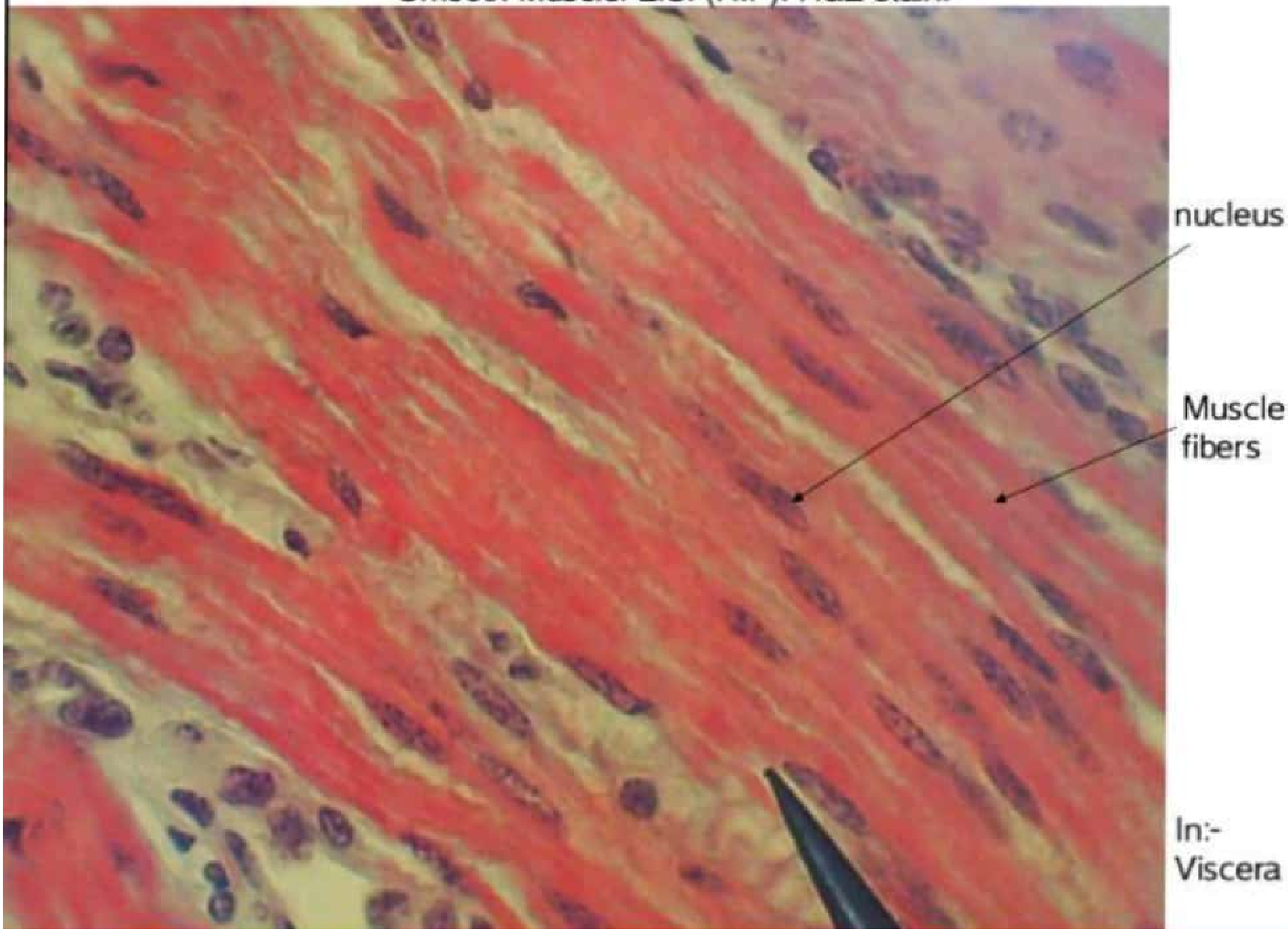
Skeletal Muscle. T.S. (M.P). H&E stain.


B.V
Muscle fibers
endonurium
Nerve fibers
perinurium

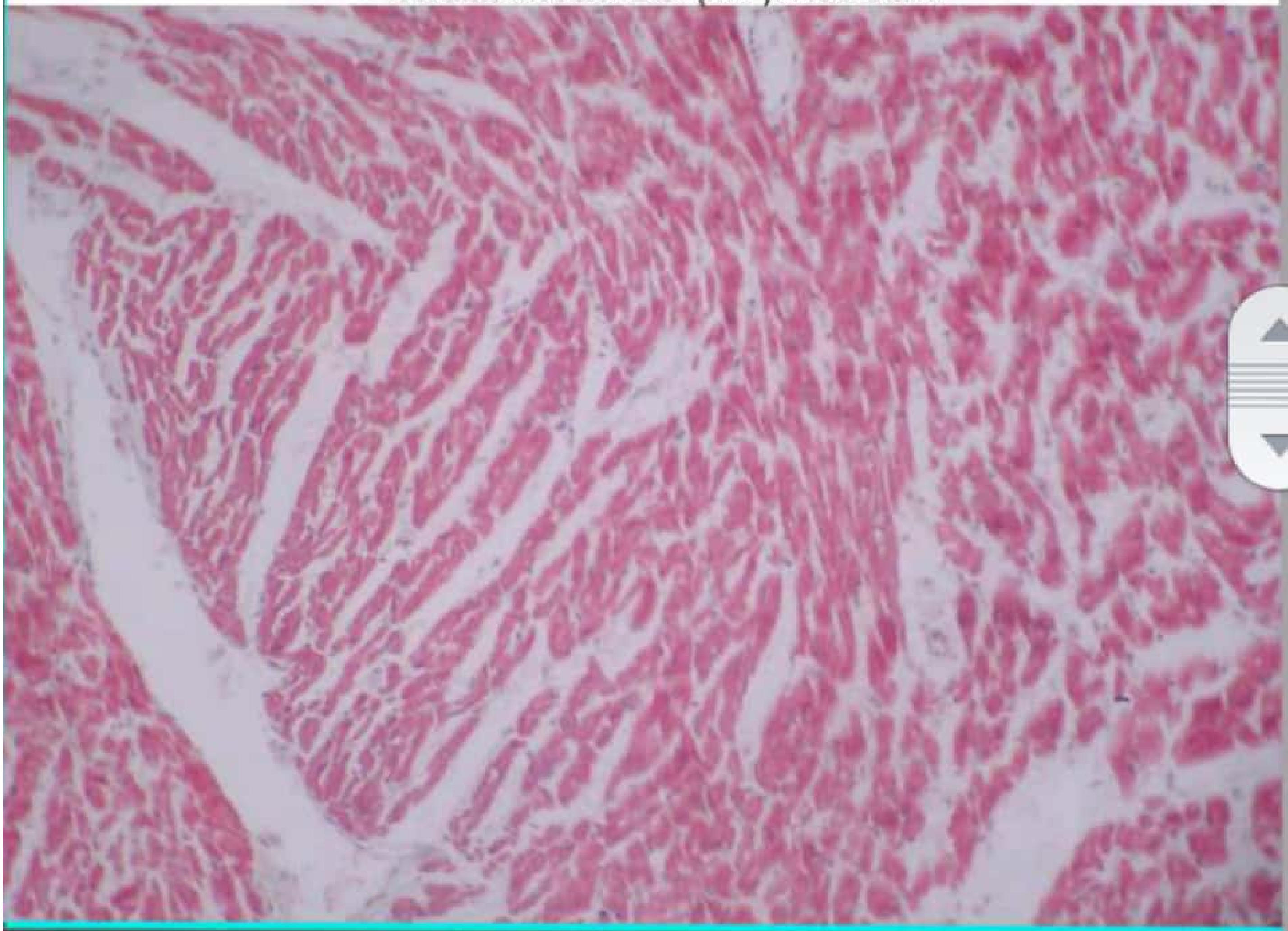
Smooth Muscle. L.S. (M.P). H&E stain.


nucleus
Muscle fibers
In:- Viscera

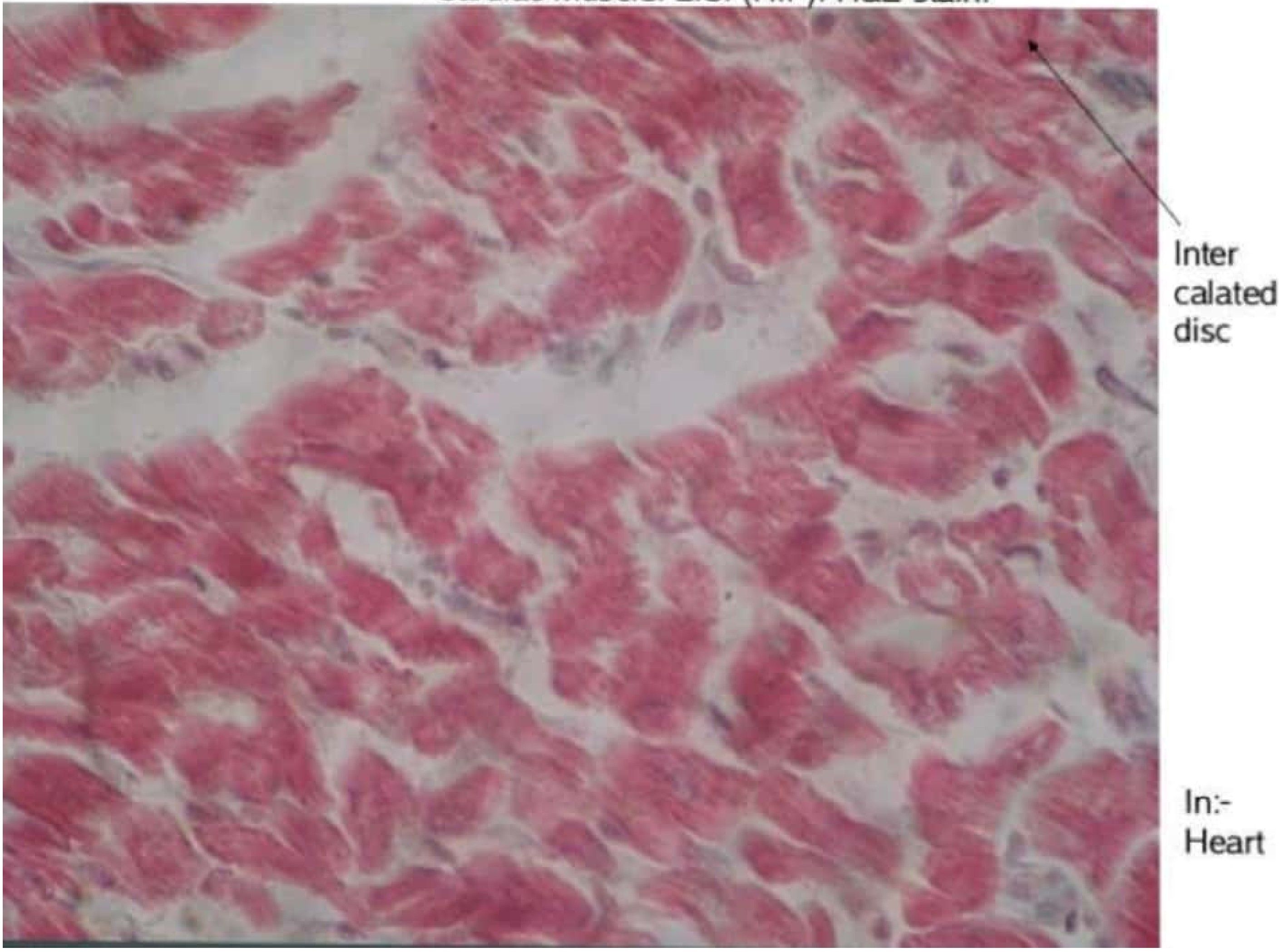
Smooth Muscle. L.S. (H.P). H&E stain.


nucleus
Muscle fibers
In:- Viscera

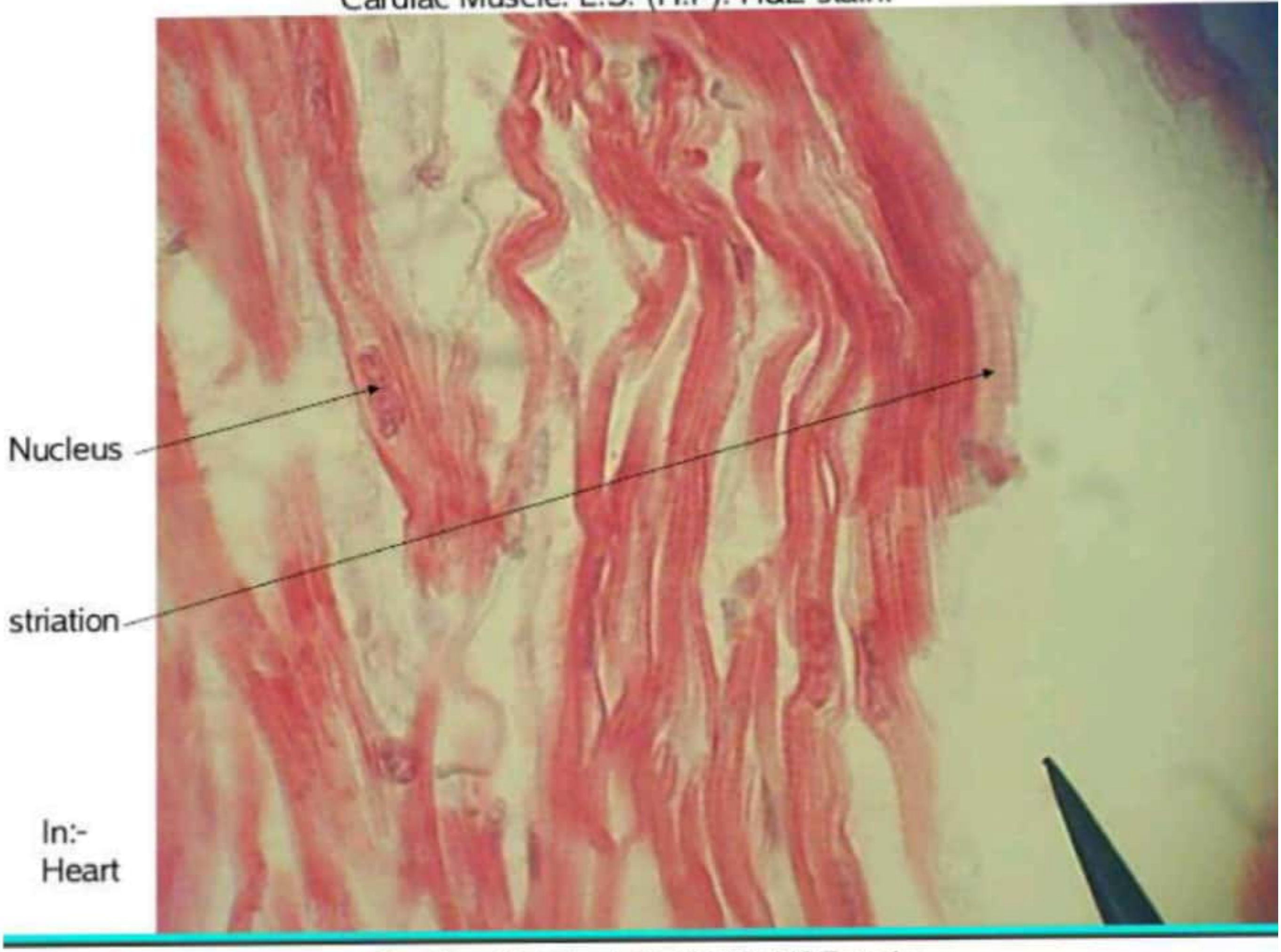
Cardiac Muscle. L.S. (M.P). H&E stain.



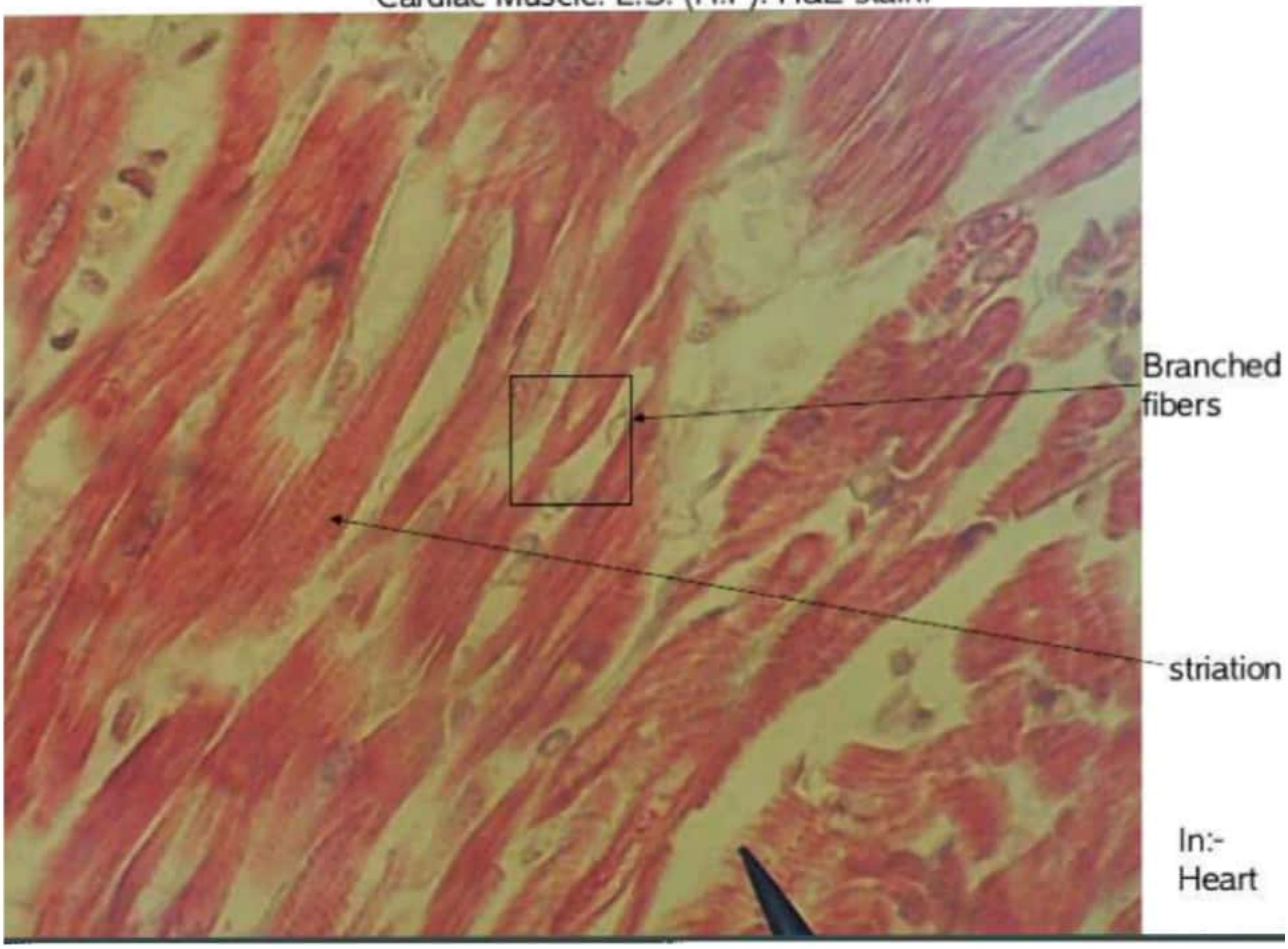
Cardiac Muscle. L.S. (H.P). H&E stain.


Inter calated disc
In:- Heart

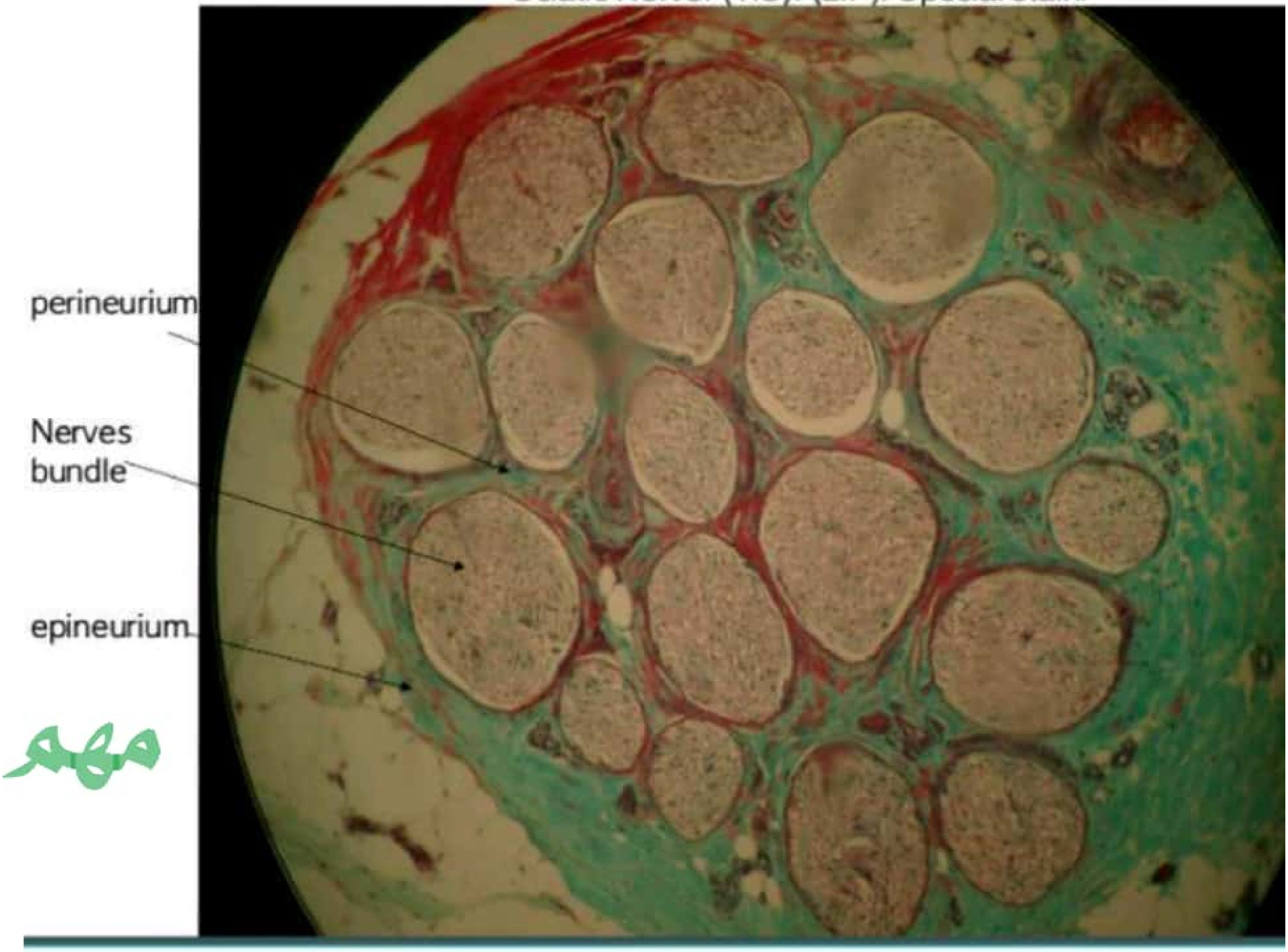
Cardiac Muscle. L.S. (H.P). H&E stain.


Nucleus
striation
In:-
Heart

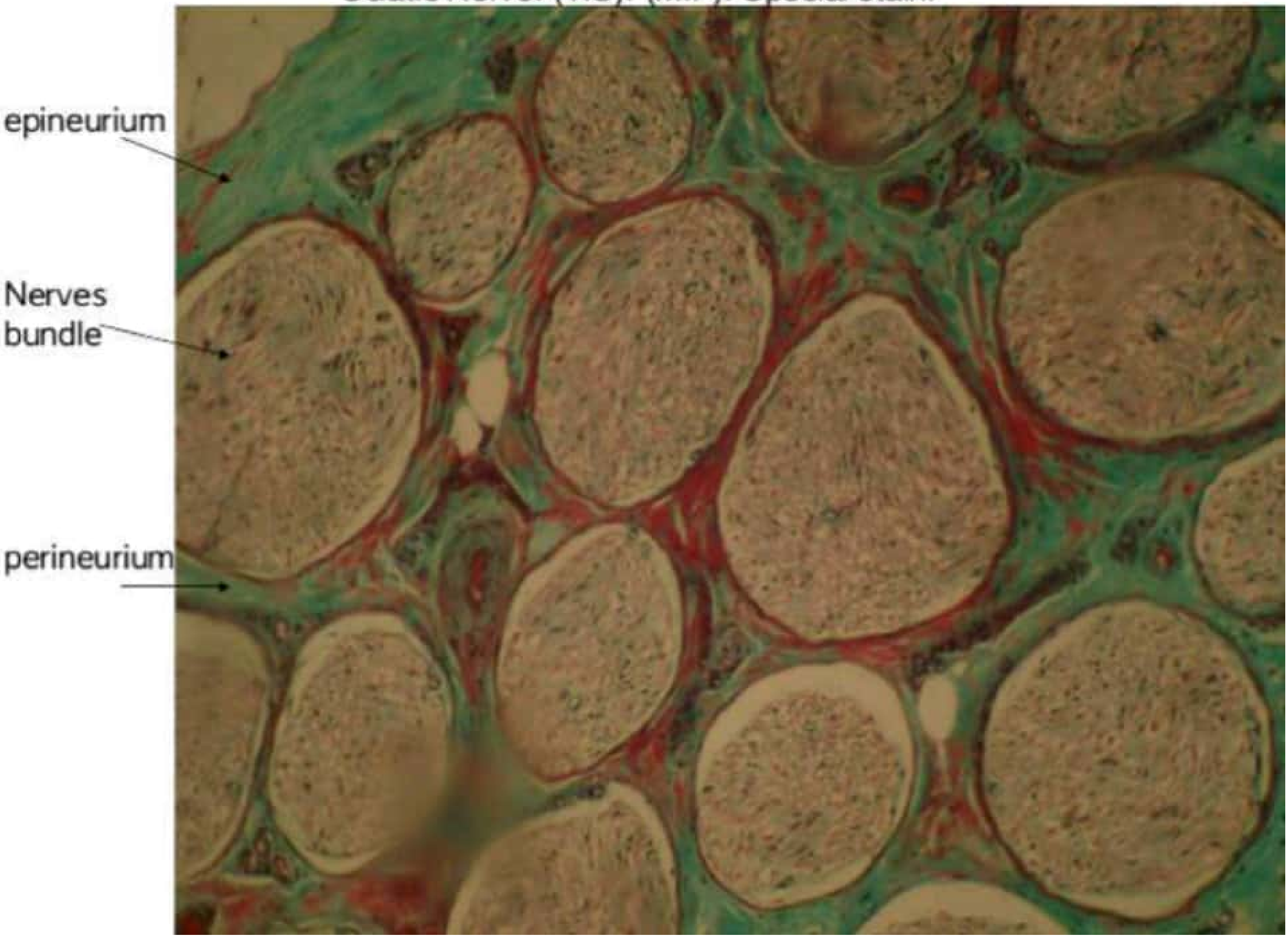
Cardiac Muscle. L.S. (H.P). H&E stain.


Branched
fibers
striation
In:-
Heart

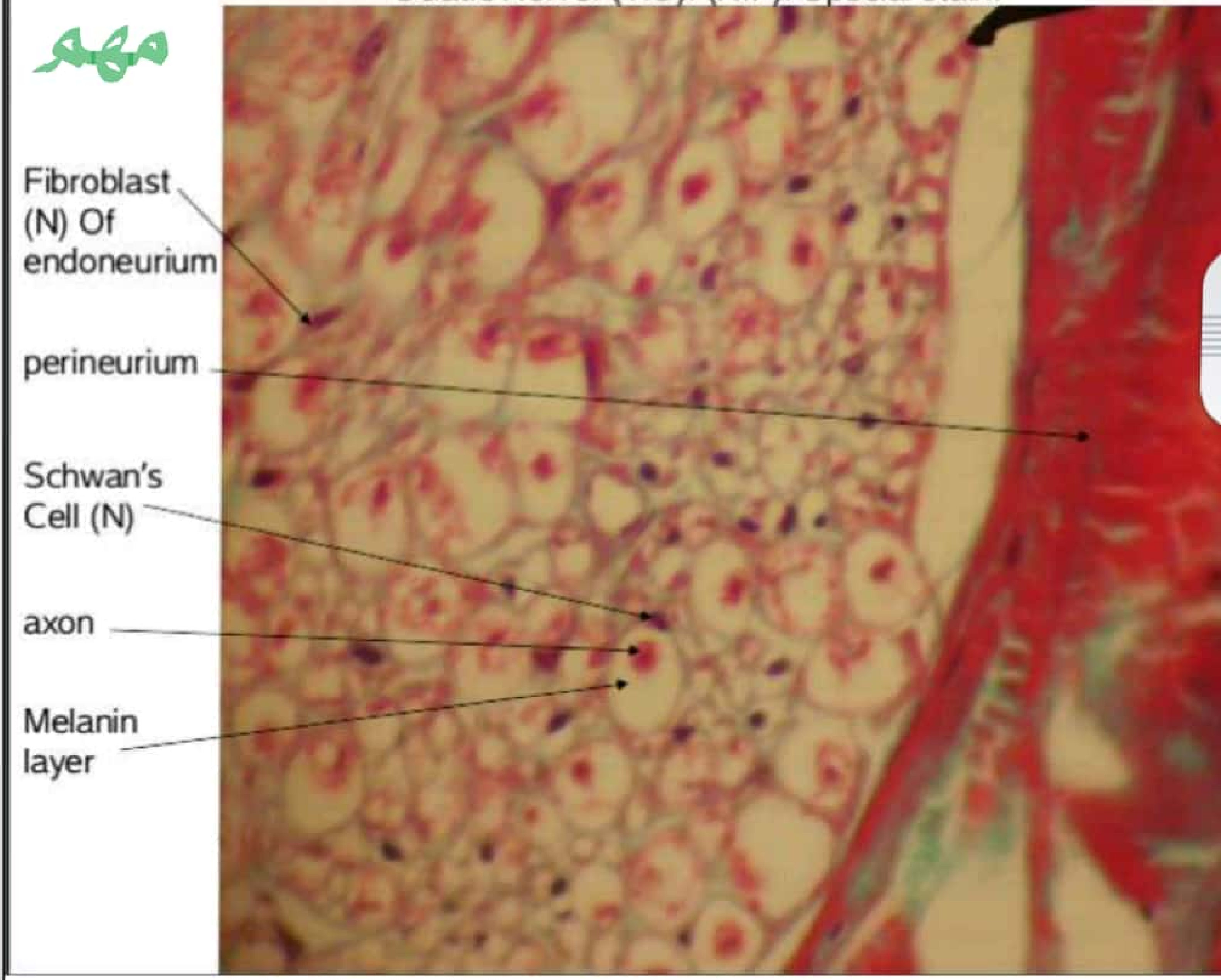
Sciatic Nerve. (T.S). (L.P). Special stain.


perineurium
Nerves bundle
epineurium

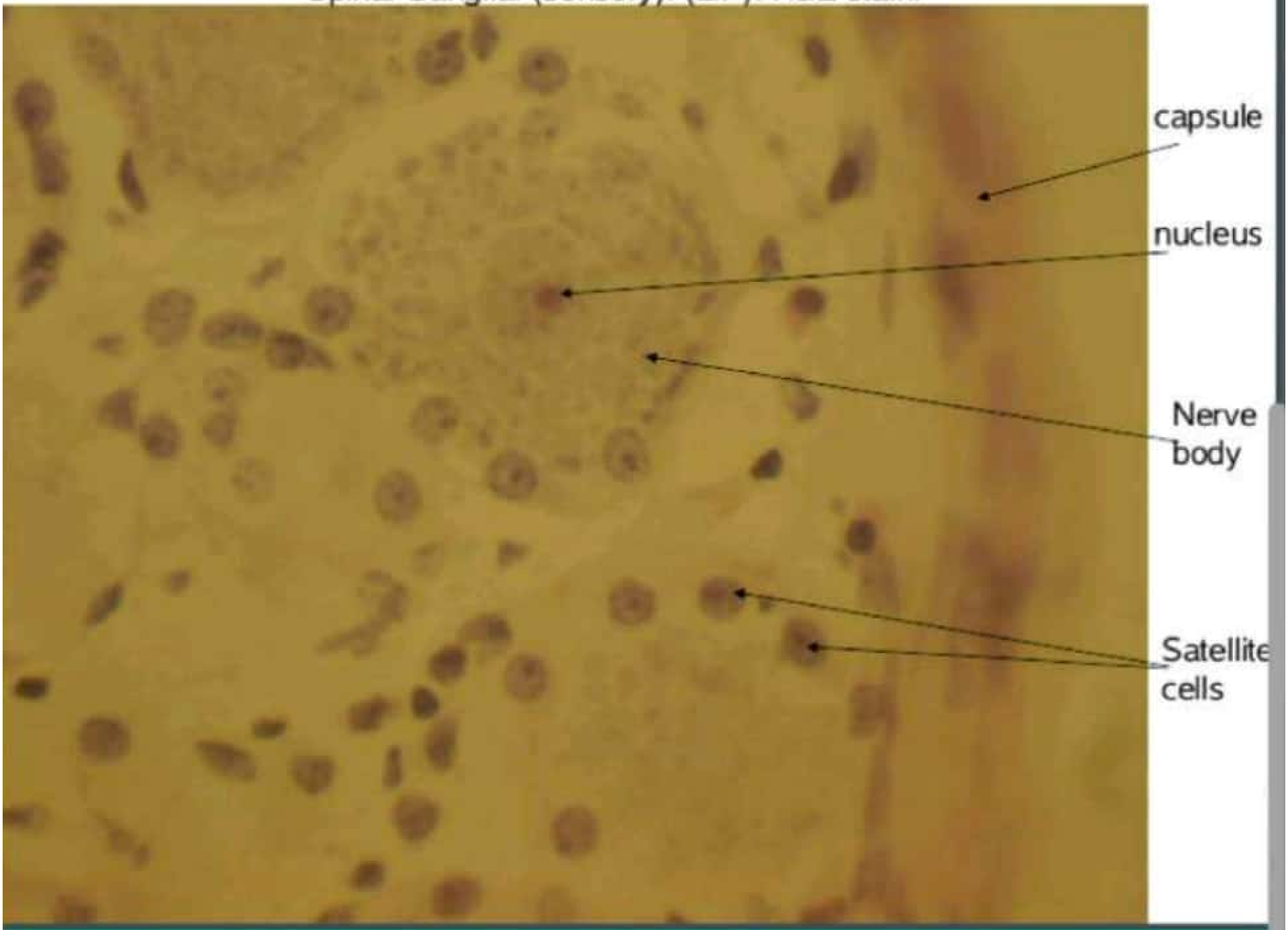
Sciatic Nerve. (T.S). (M.P). Special stain.


epineurium
Nerves bundle
perineurium

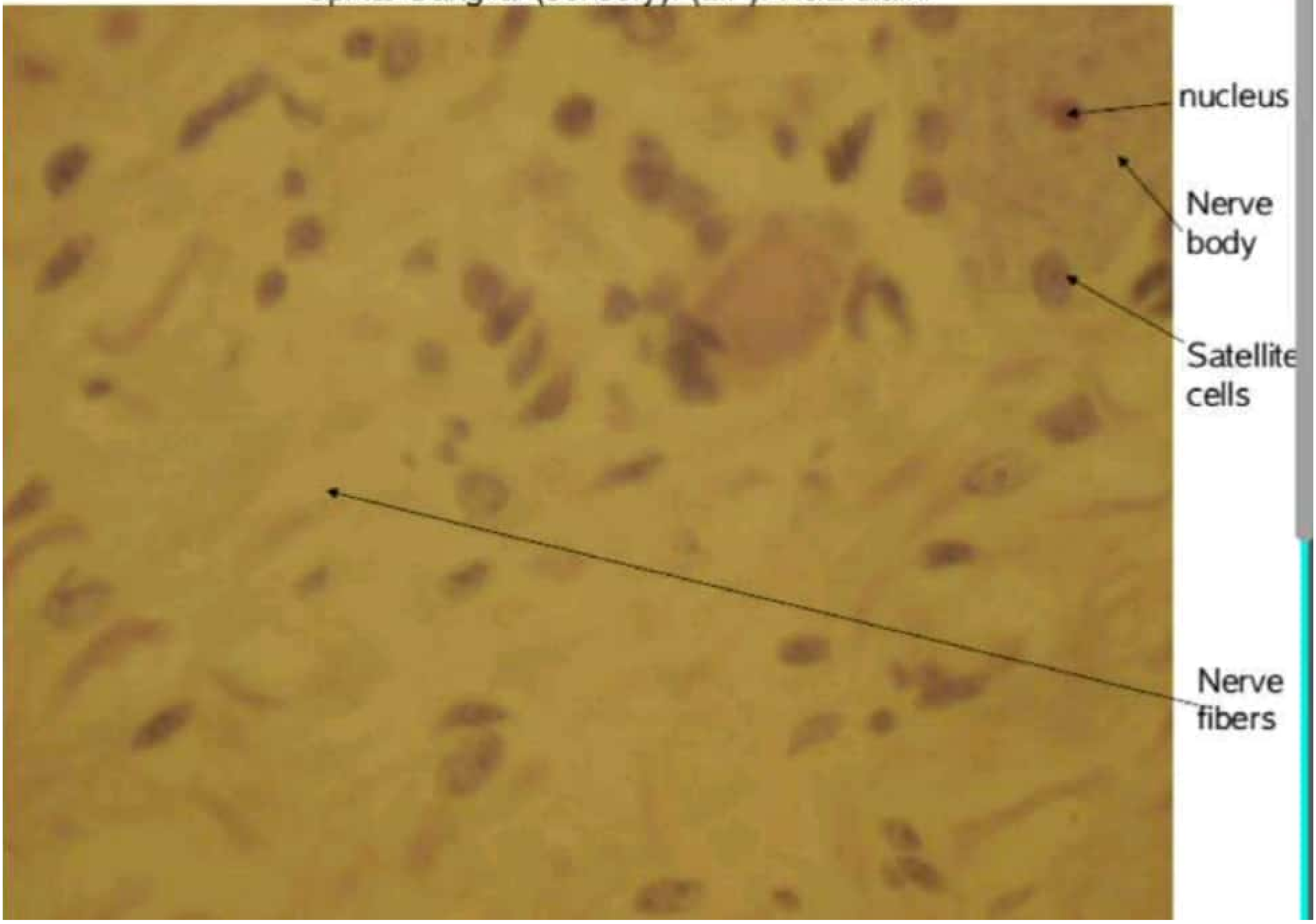
Sciatic Nerve. (T.S). (H.P). Special stain.


Fibroblast (N) Of endoneurium
perineurium
Schwan's Cell (N)
axon
Melanin layer

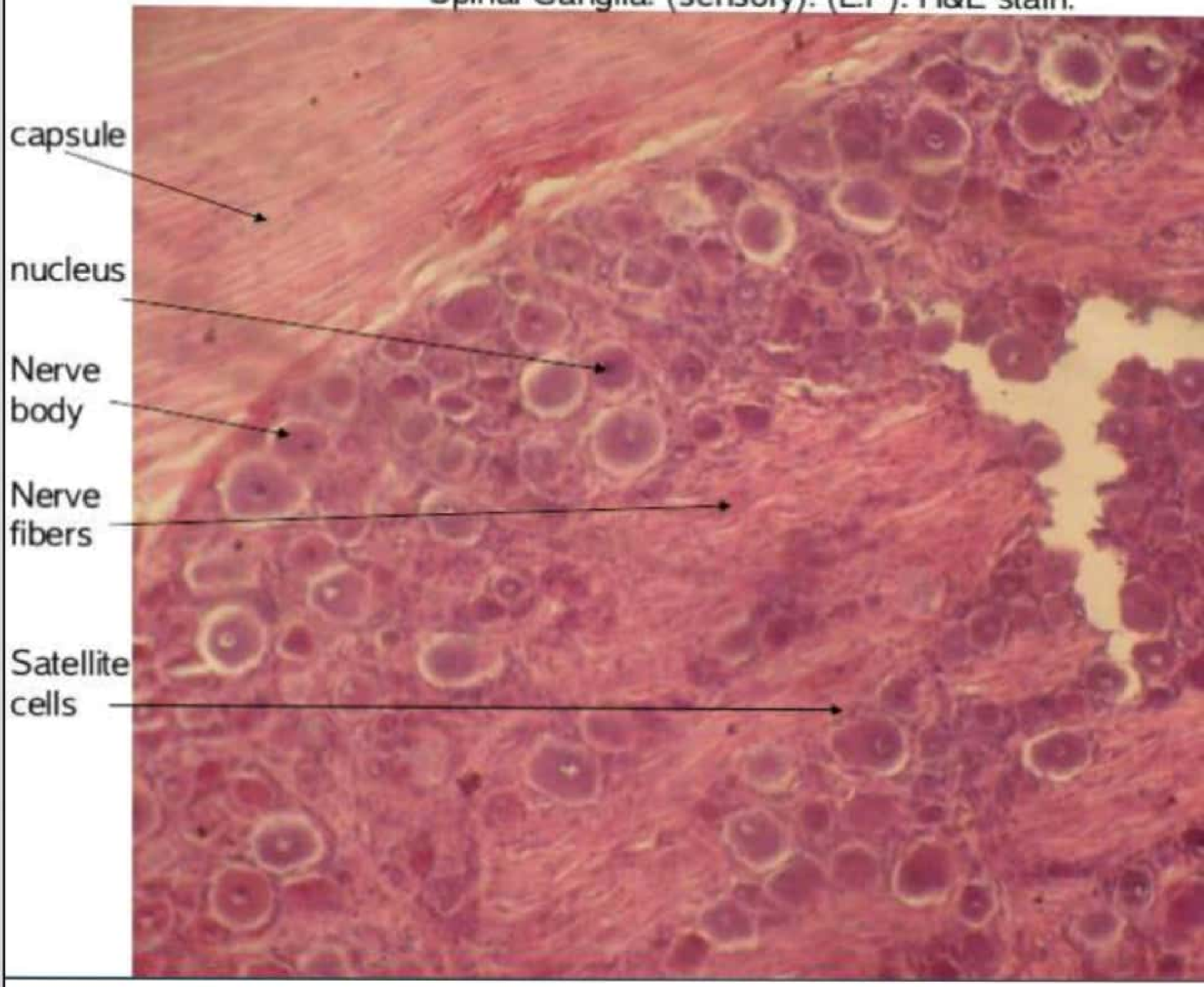
Spinal Ganglia. (sensory). (L.P). H&E stain.


capsule
nucleus
Nerve body
Satellite cells

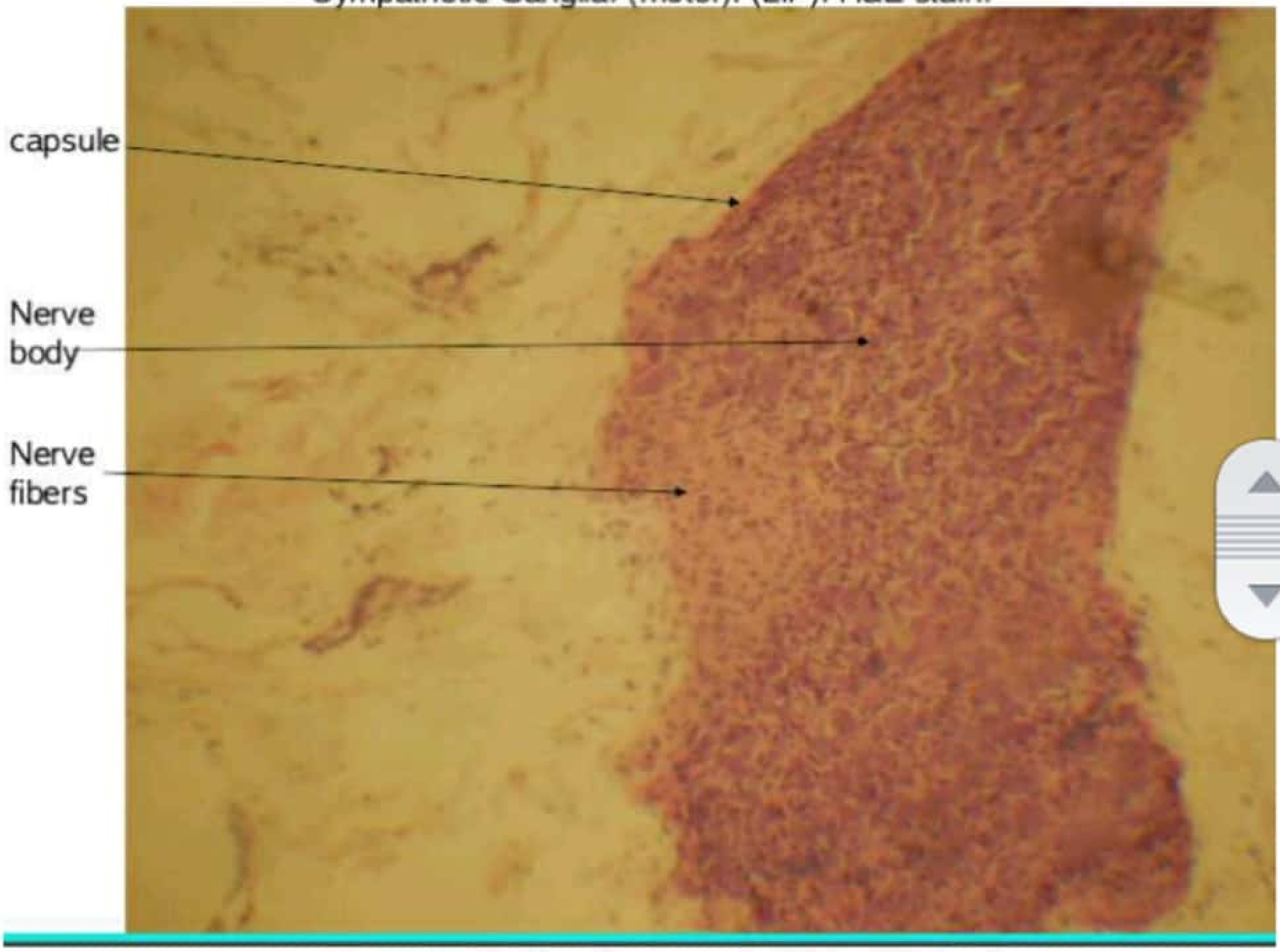
Spinal Ganglia. (sensory). (L.P). H&E stain.


nucleus
Nerve body
Satellite cells
Nerve fibers

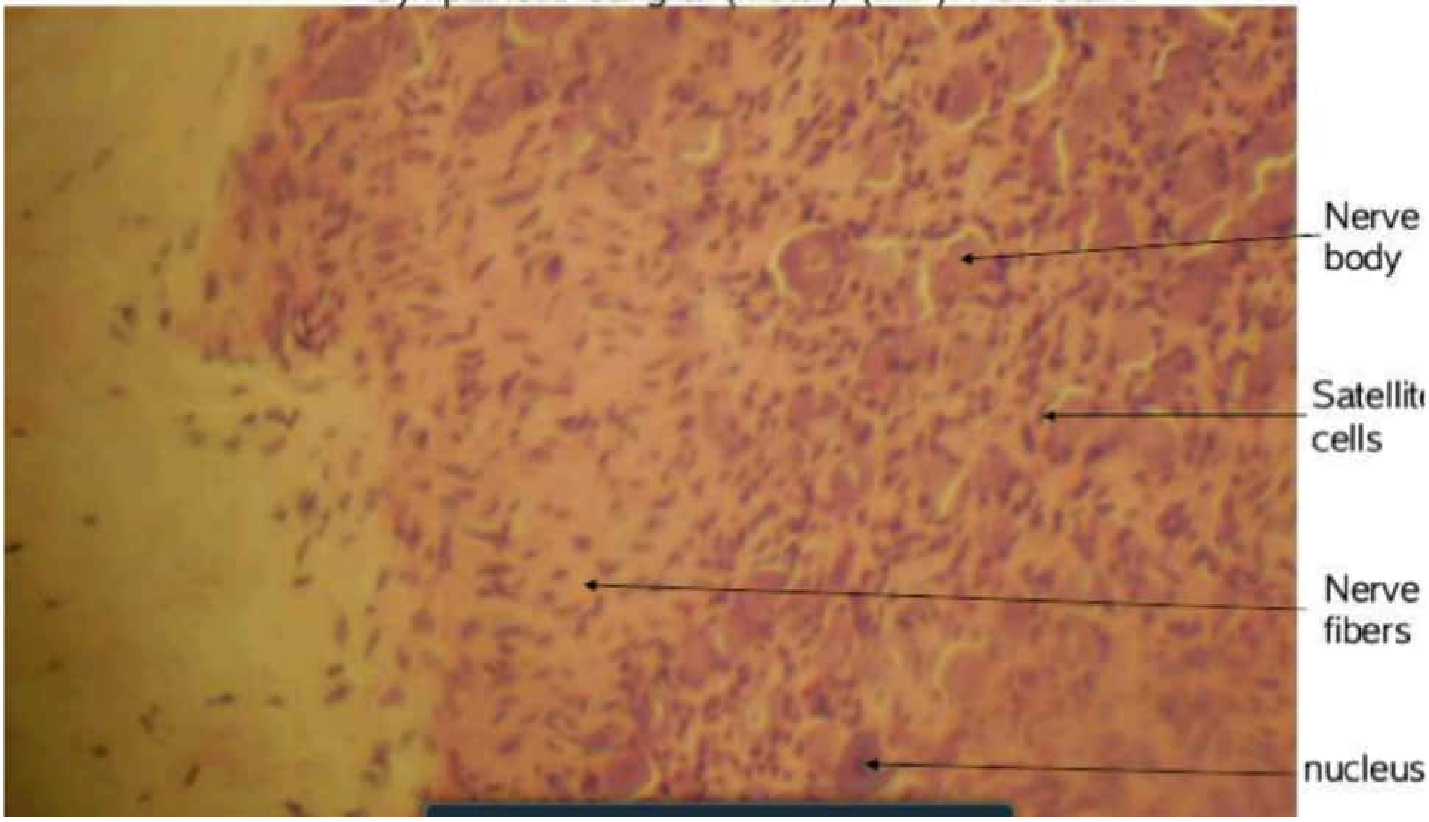
Spinal Ganglia. (sensory). (L.P). H&E stain.


capsule
nucleus
Nerve body
Nerve fibers
Satellite cells

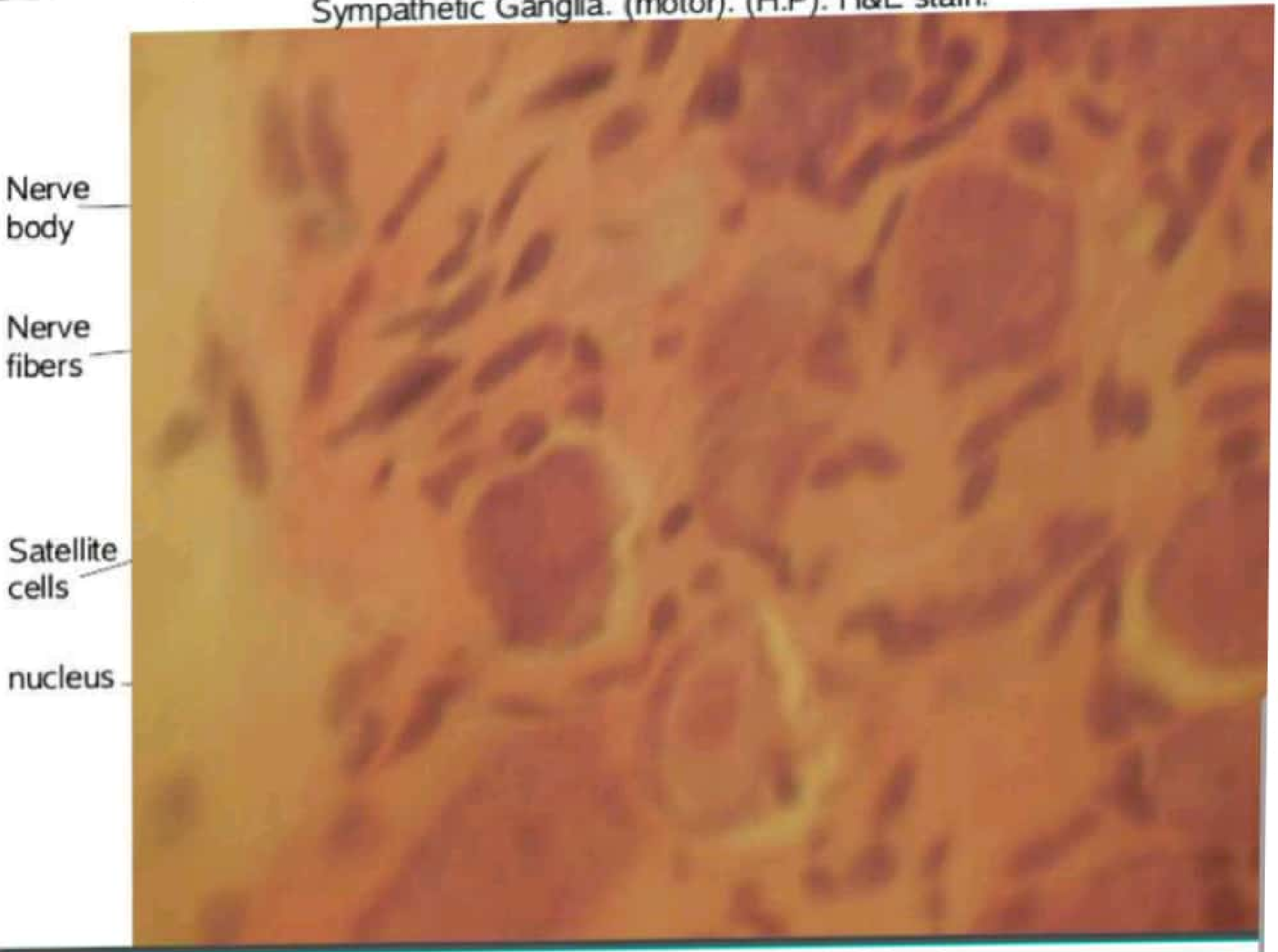
Sympathetic Ganglia. (motor). (L.P). H&E stain.


capsule
Nerve body
Nerve fibers

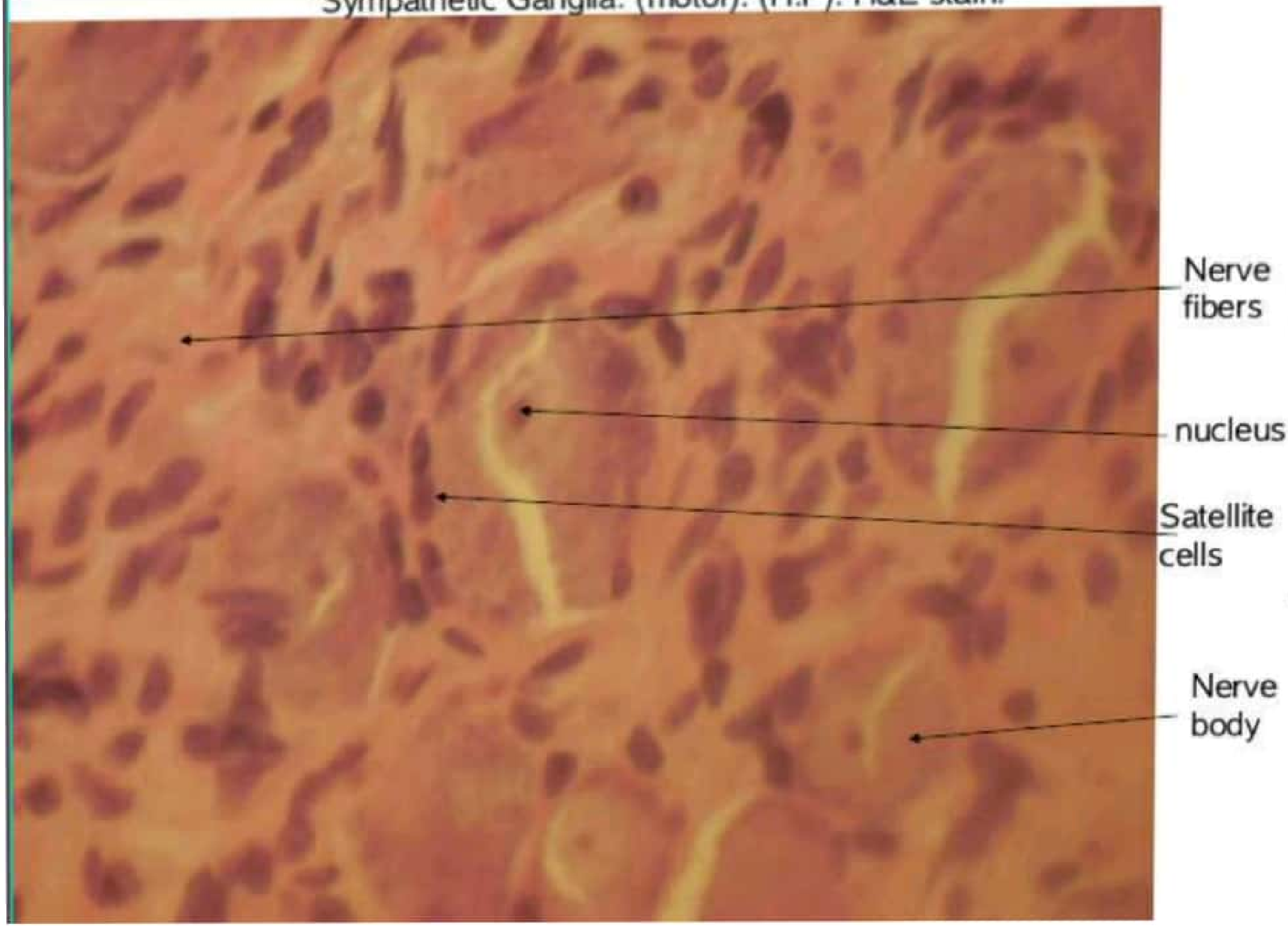
Sympathetic Ganglia. (motor). (M.P). H&E stain.

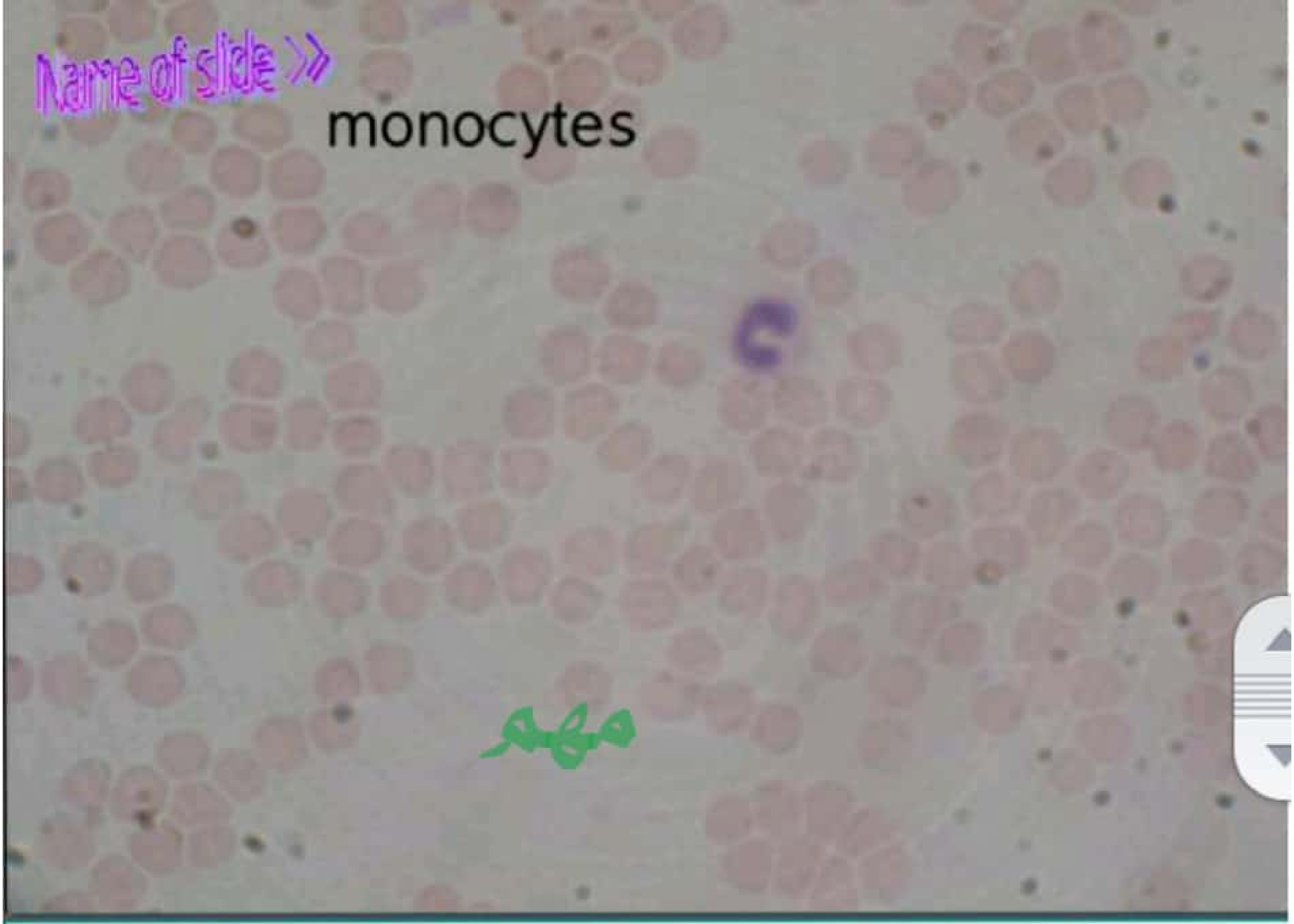

Nerve body
Satellit
cells
Nerve fibers
nucleus

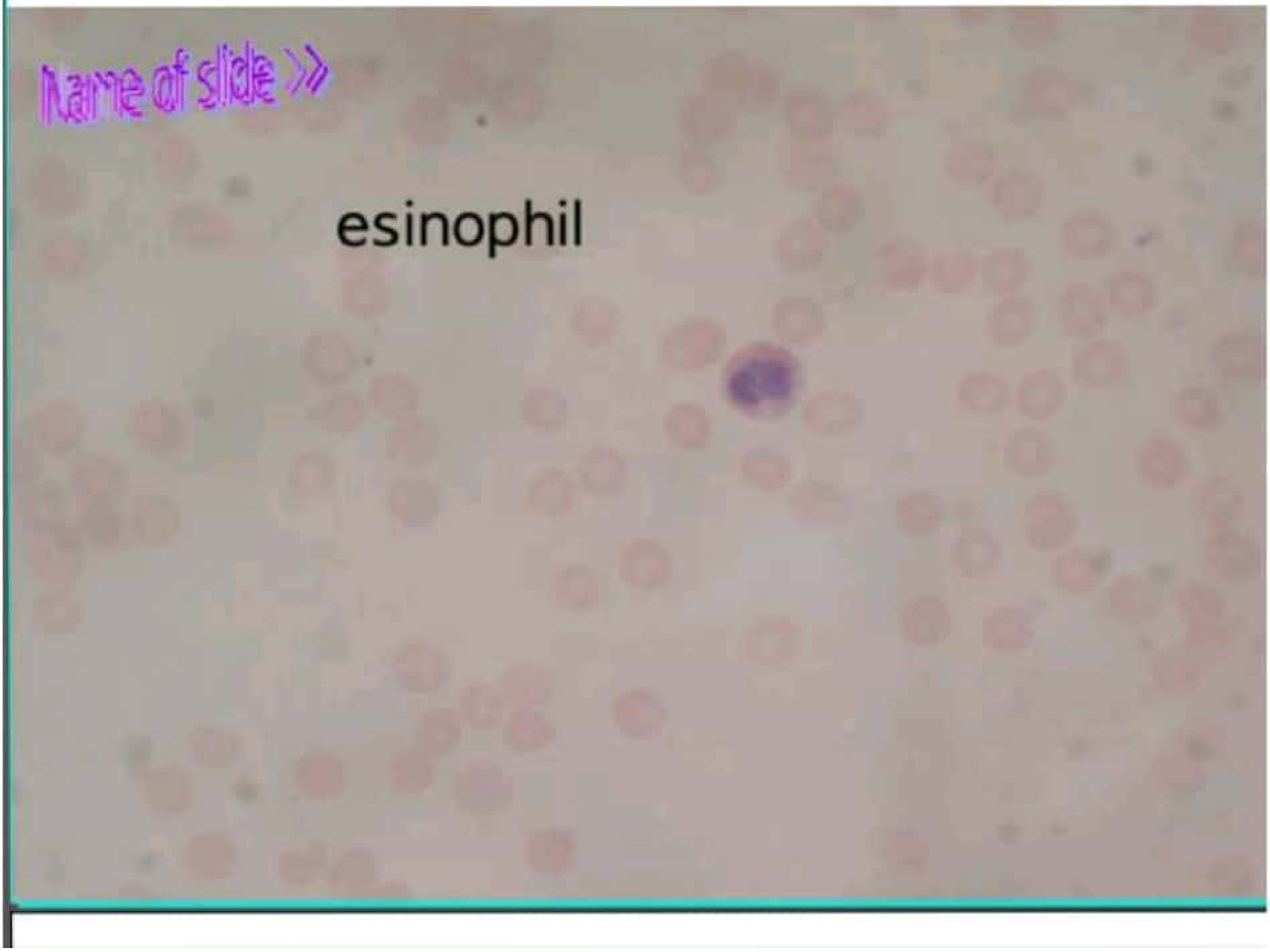
Sympathetic Ganglia. (motor). (H.P). H&E stain.

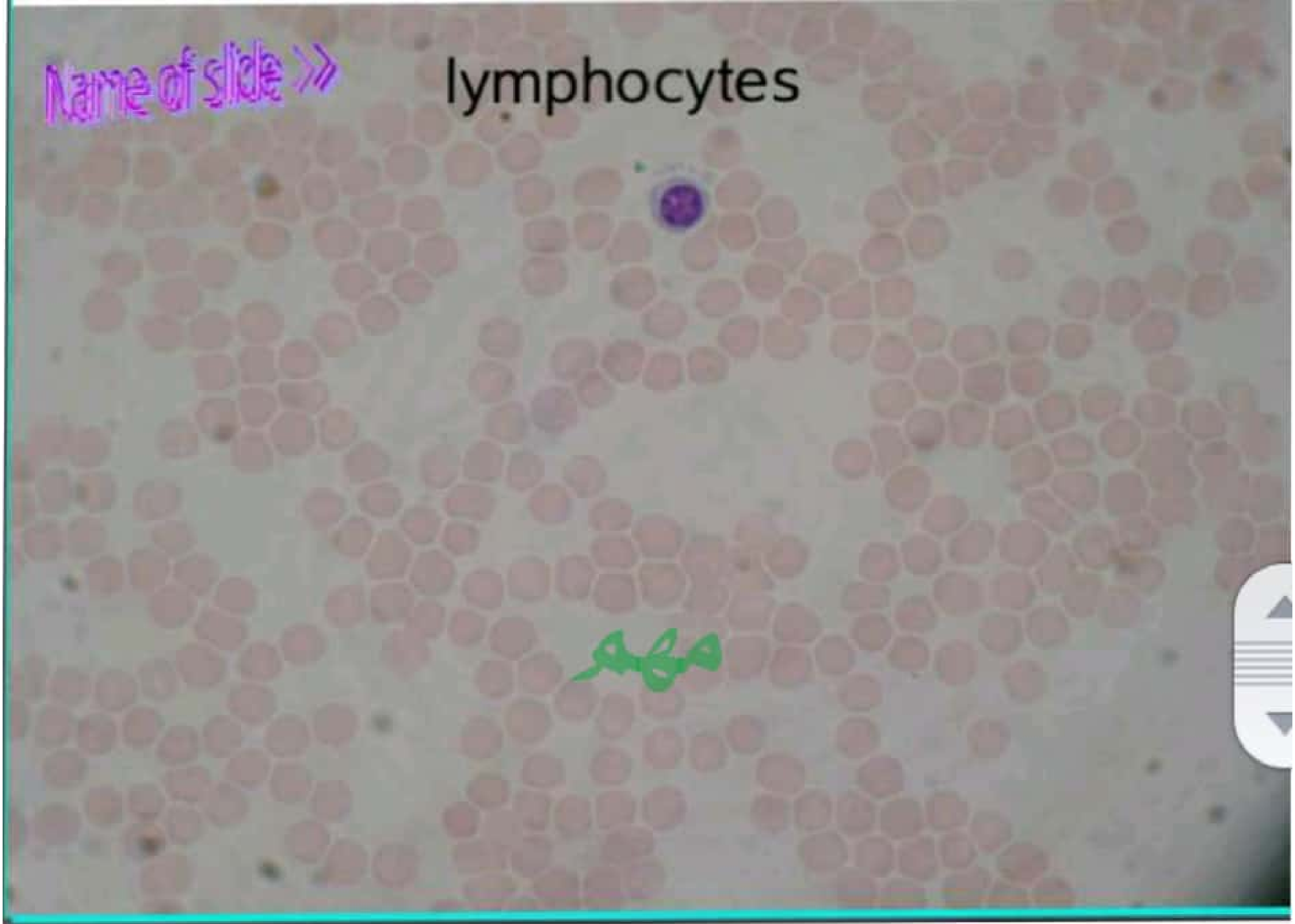

Nerve body
Nerve fibers
Satellite cells
nucleus

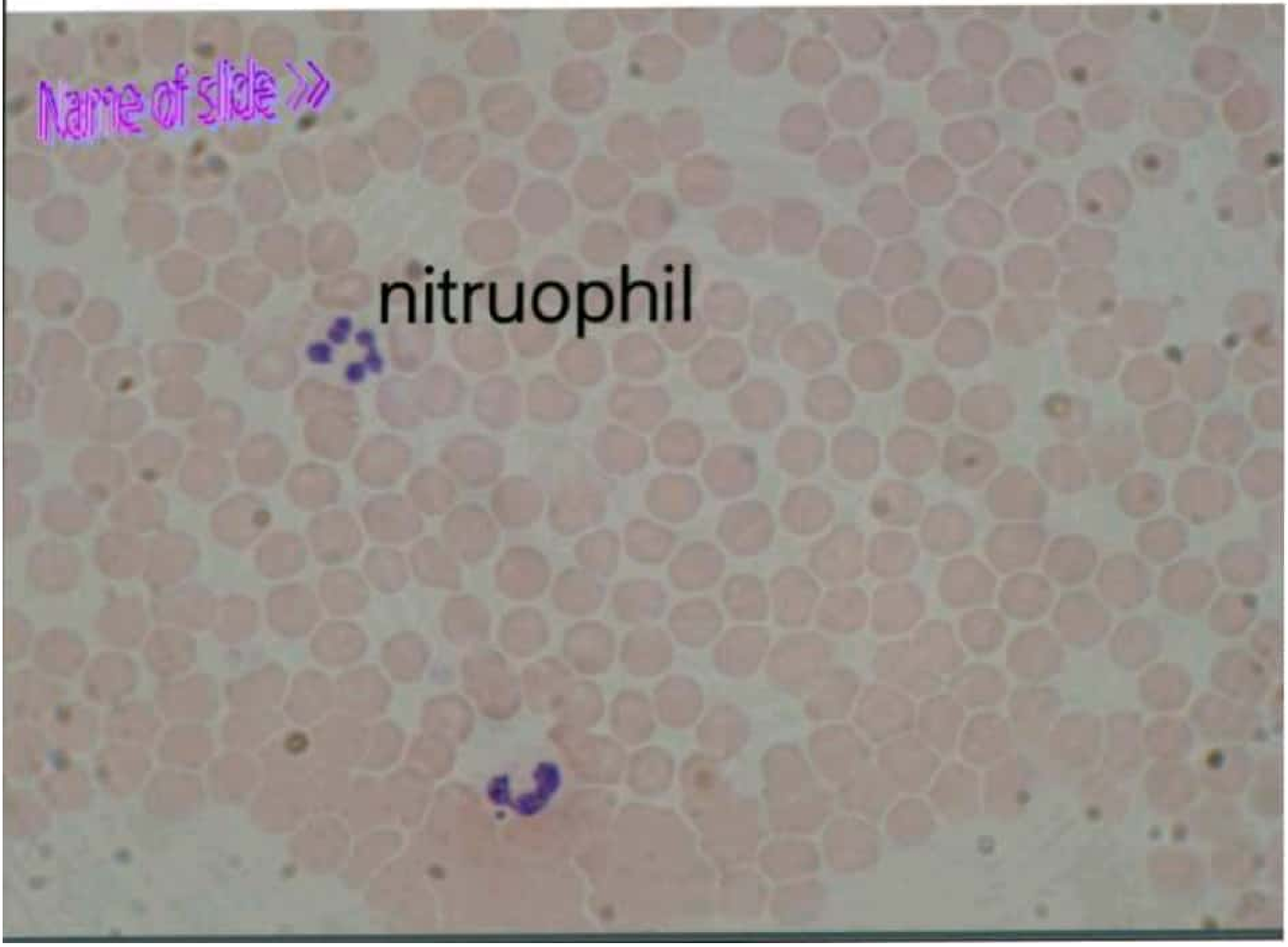
Sympathetic Ganglia. (motor). (H.P). H&E stain.


Nerve fibers
nucleus
Satellite cells
Nerve body


Name of slide >>
monocytes


Name of slide >>
esinophil


Name of slide >>
lymphocytes


Name of slide >>
nitruophil

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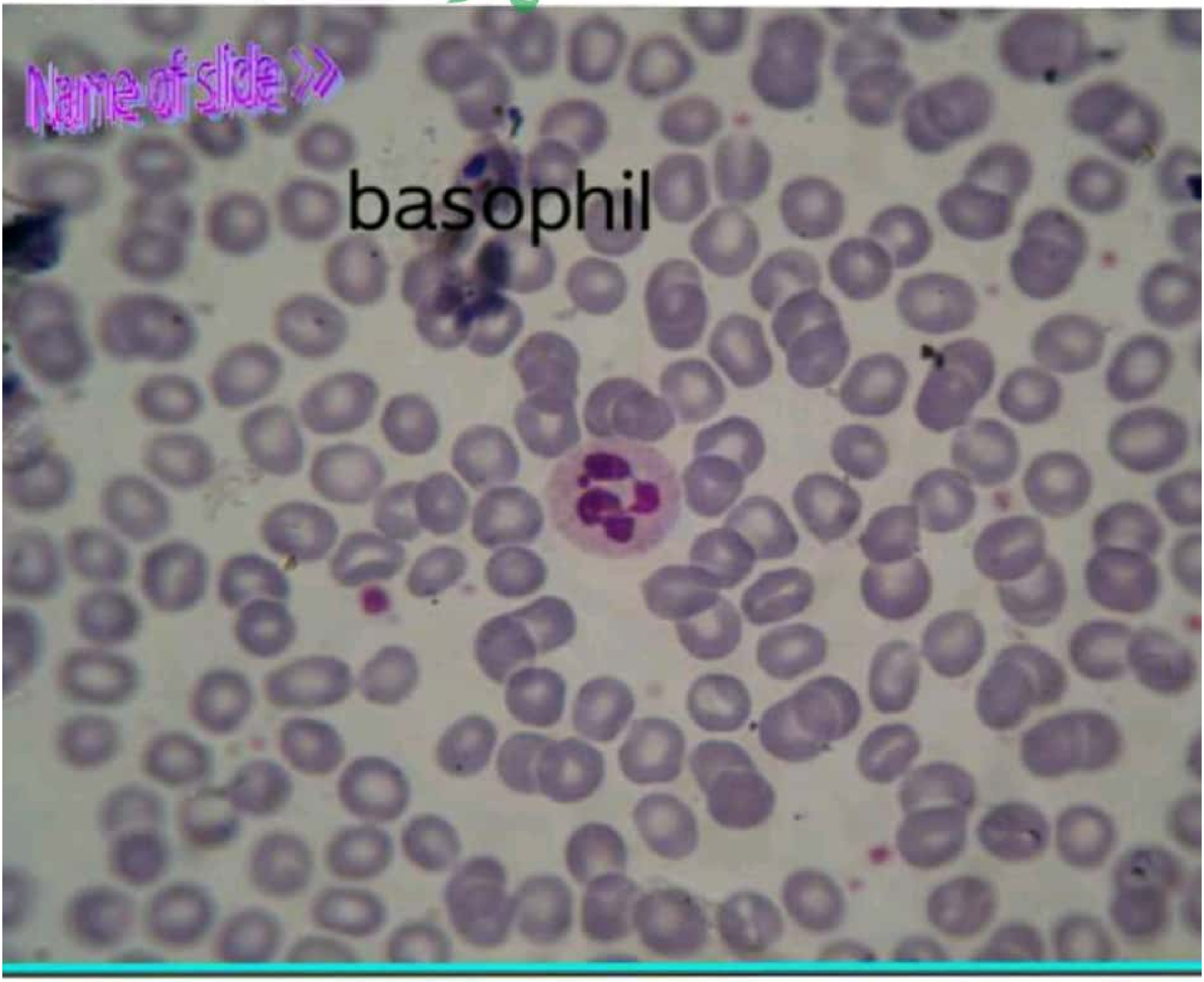
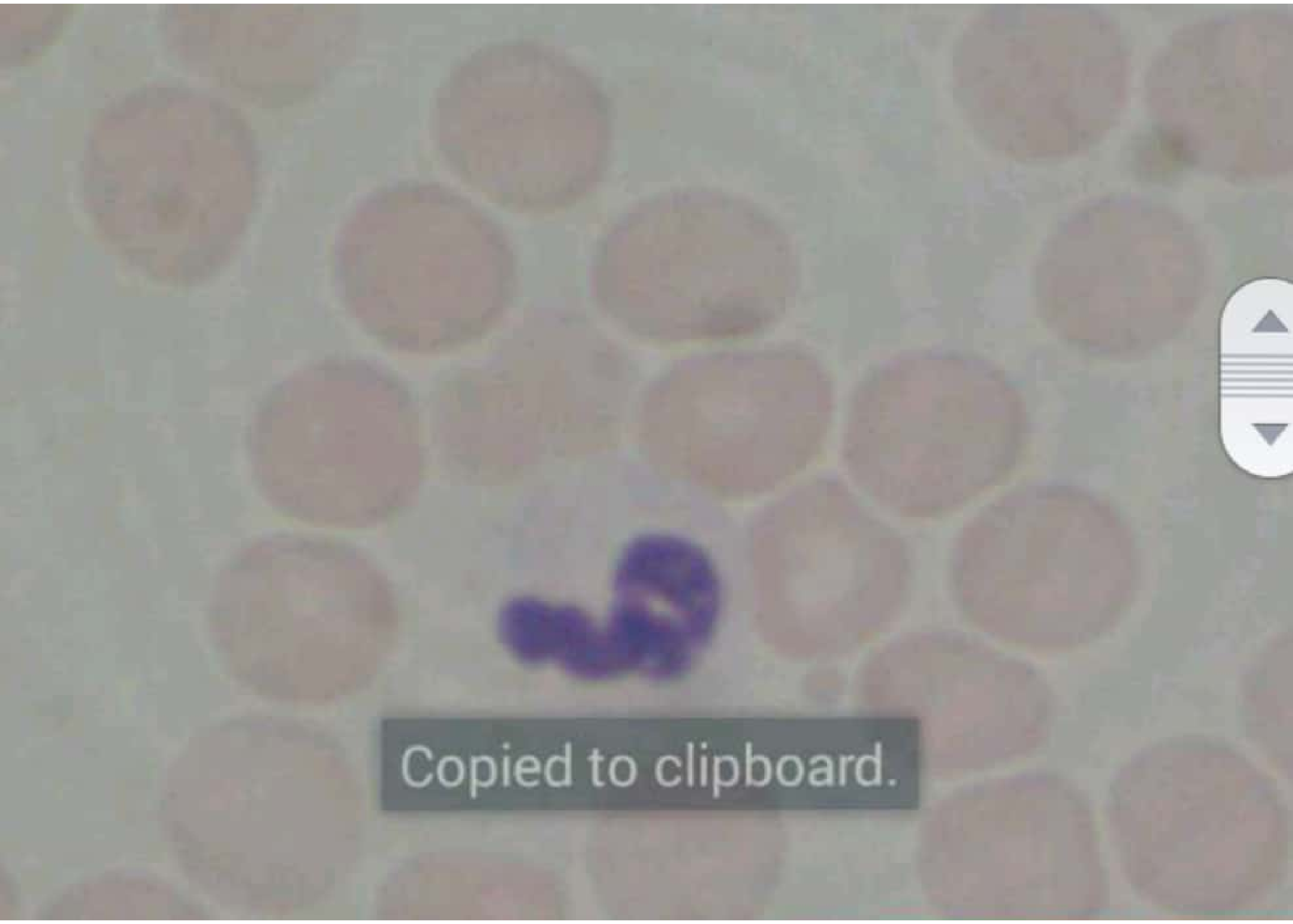
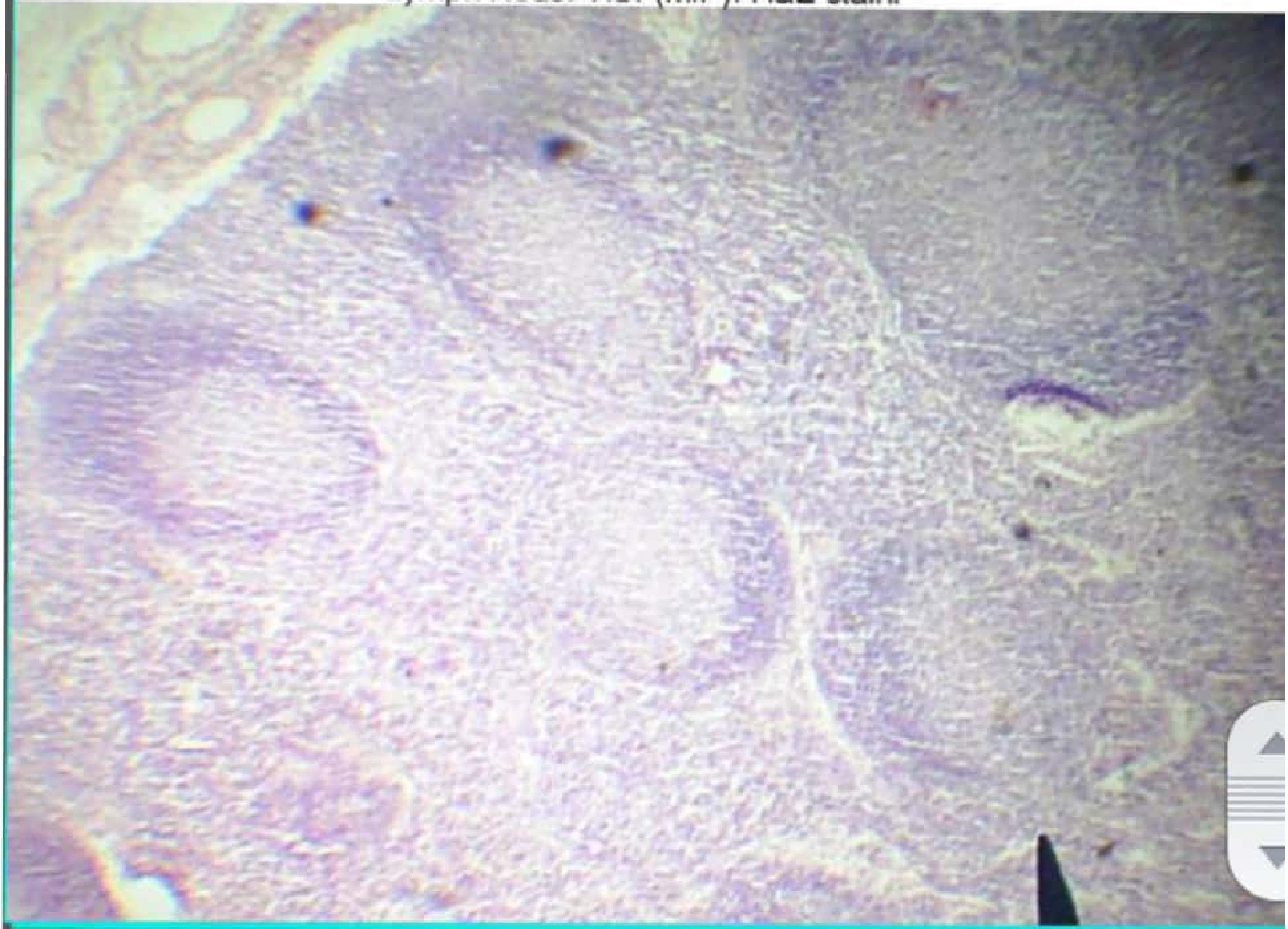

Name of slide >>
basophil

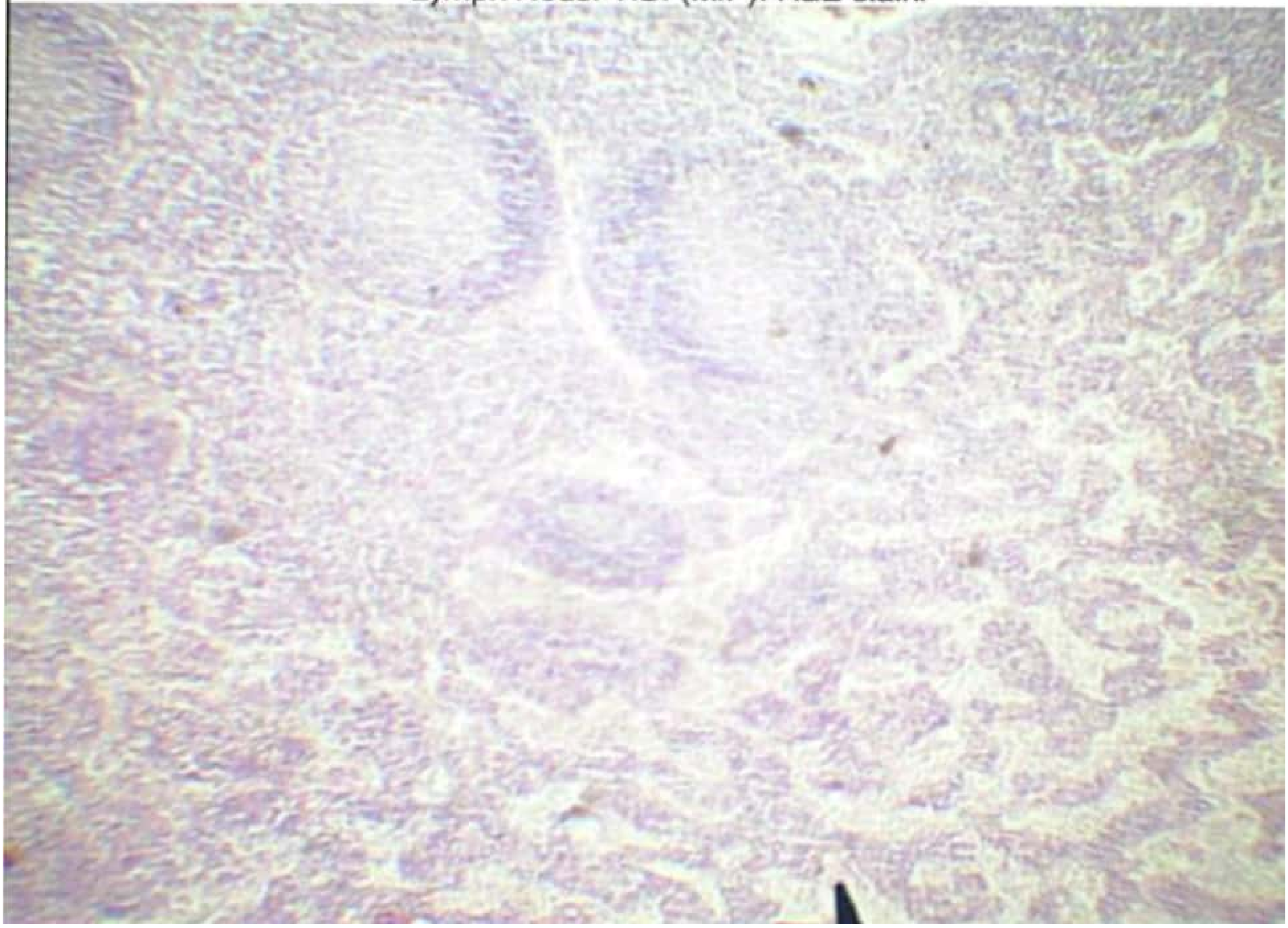


Copied to clipboard.

Lymph Node. T.S. (M.P). H&E stain.

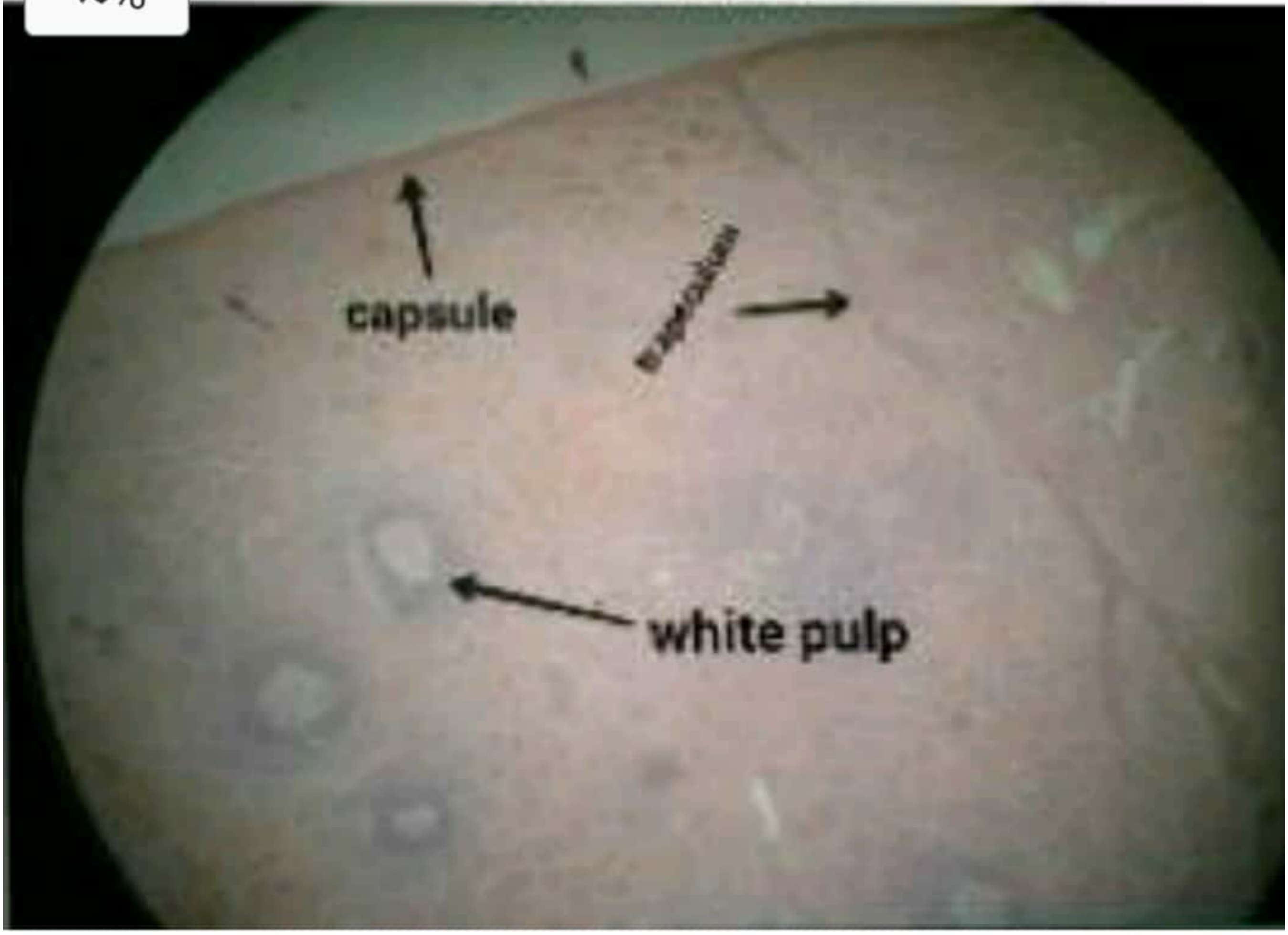


Lymph Node. T.S. (M.P). H&E stain.



٦٤%

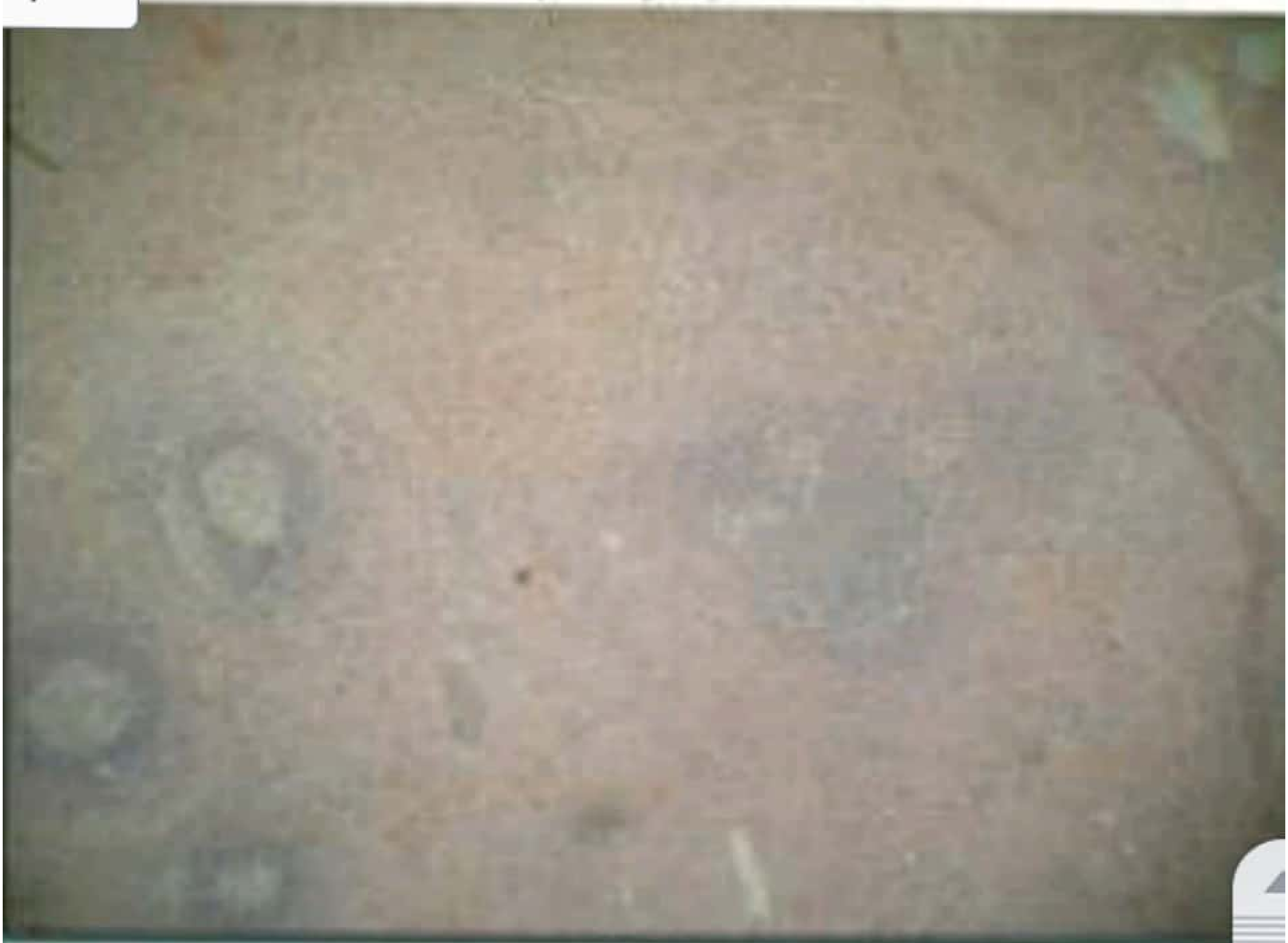
Spleen. (L.P). H&E stain.


capsule
white pulp

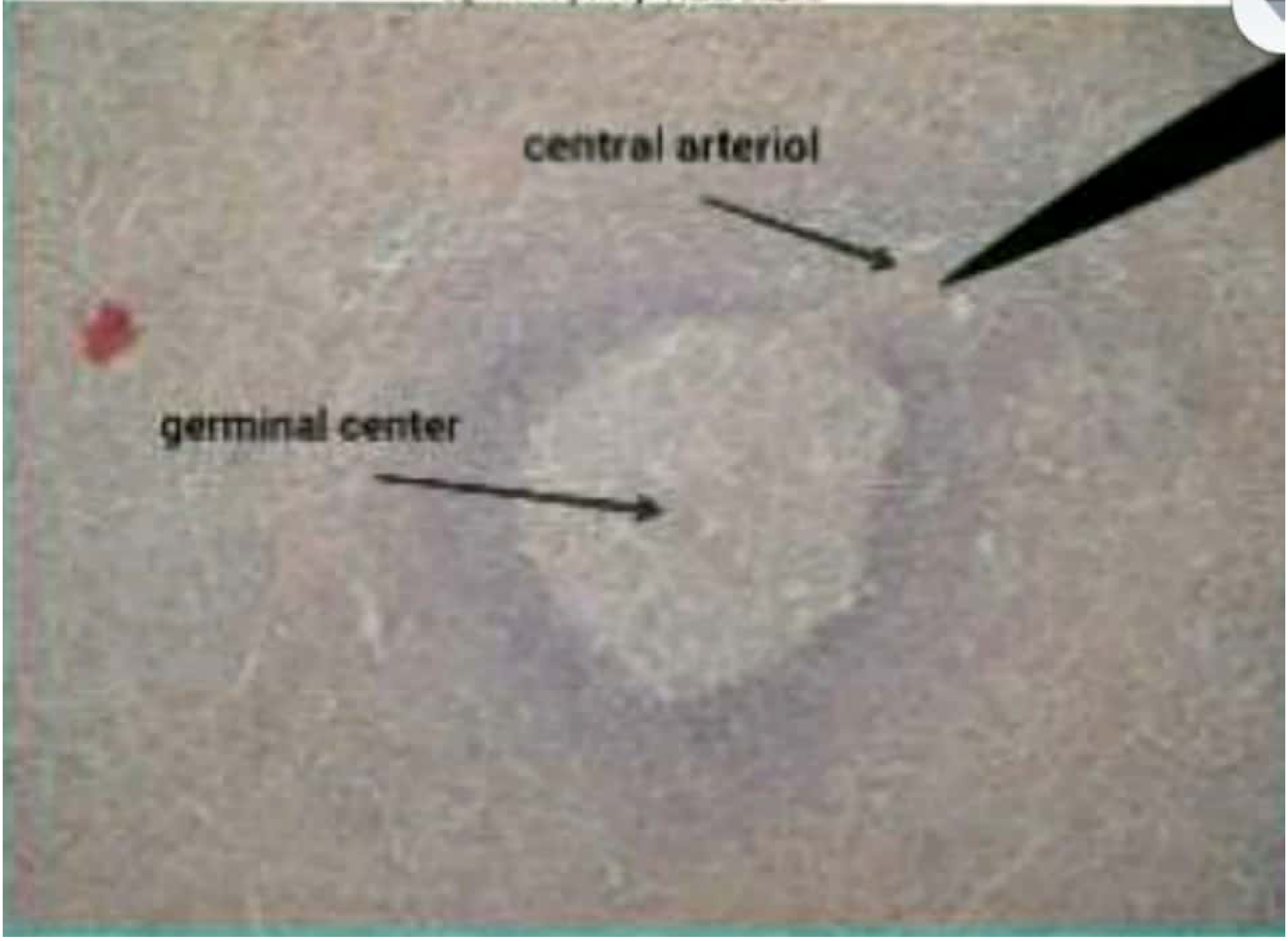
Spleen. (M.P). H&E stain.

۲/۱۸۱

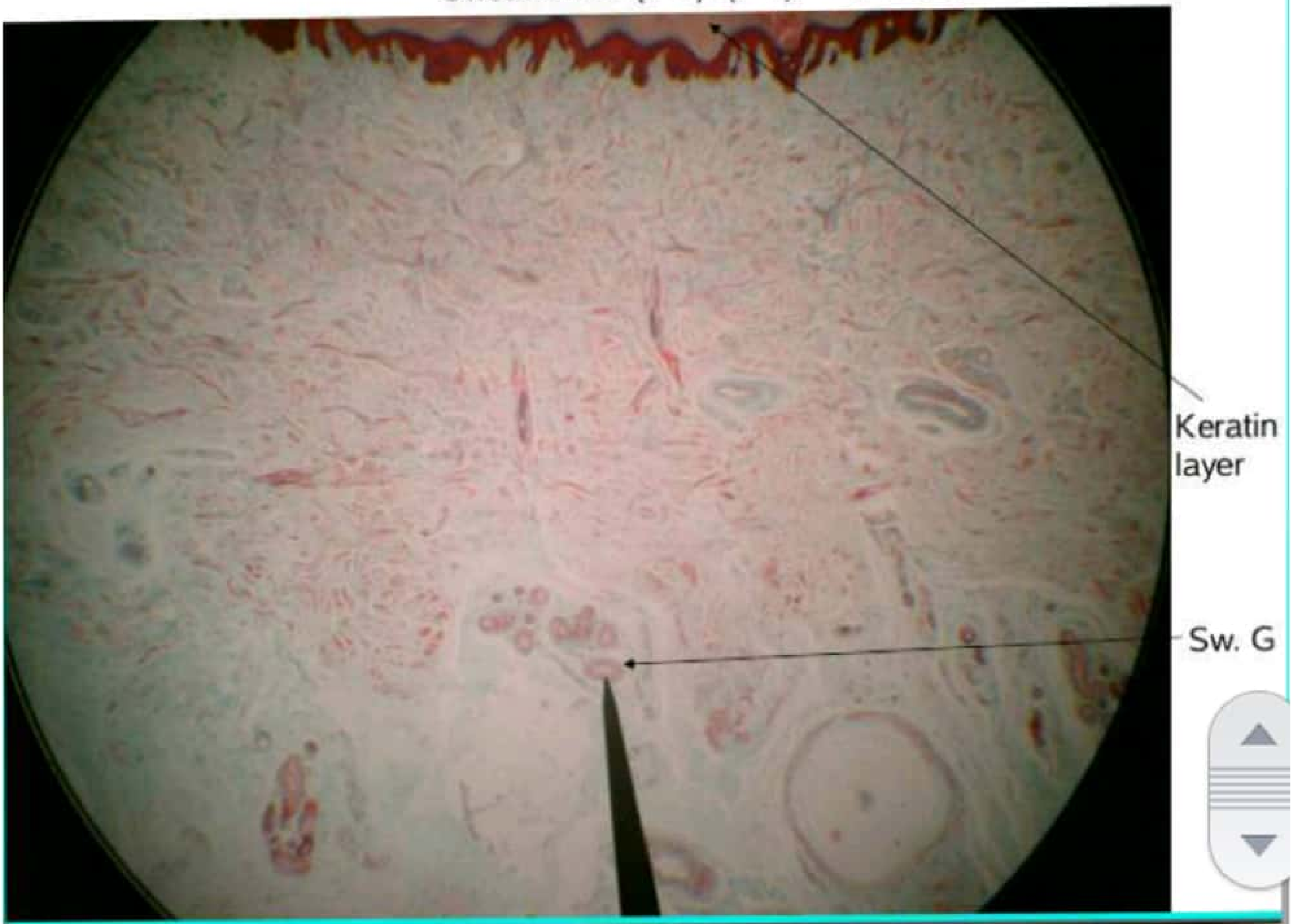
Spleen. (M.P). H&E stain.

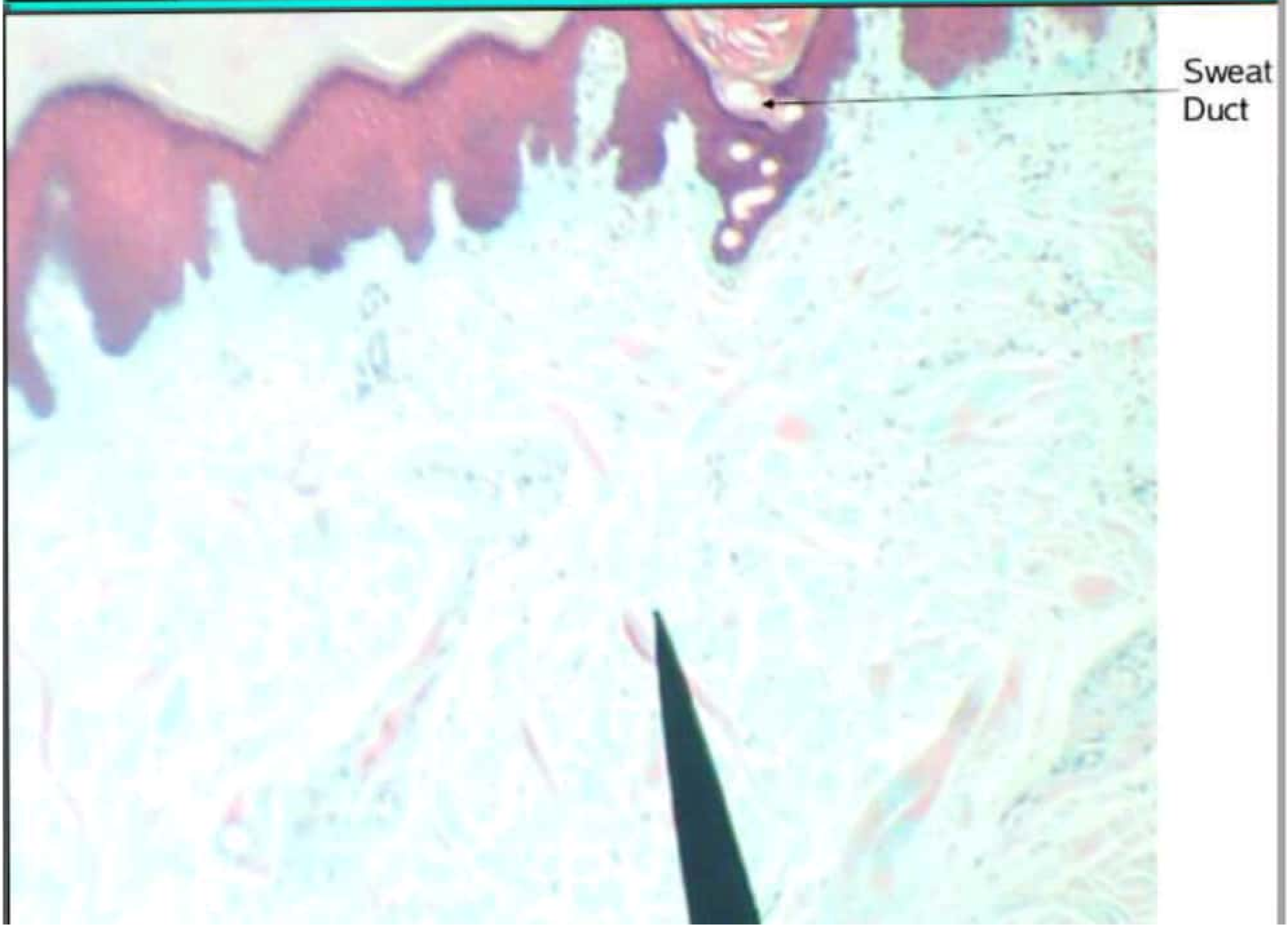


Spleen. (M.P). H&E stain.


central arteriol
germinal center

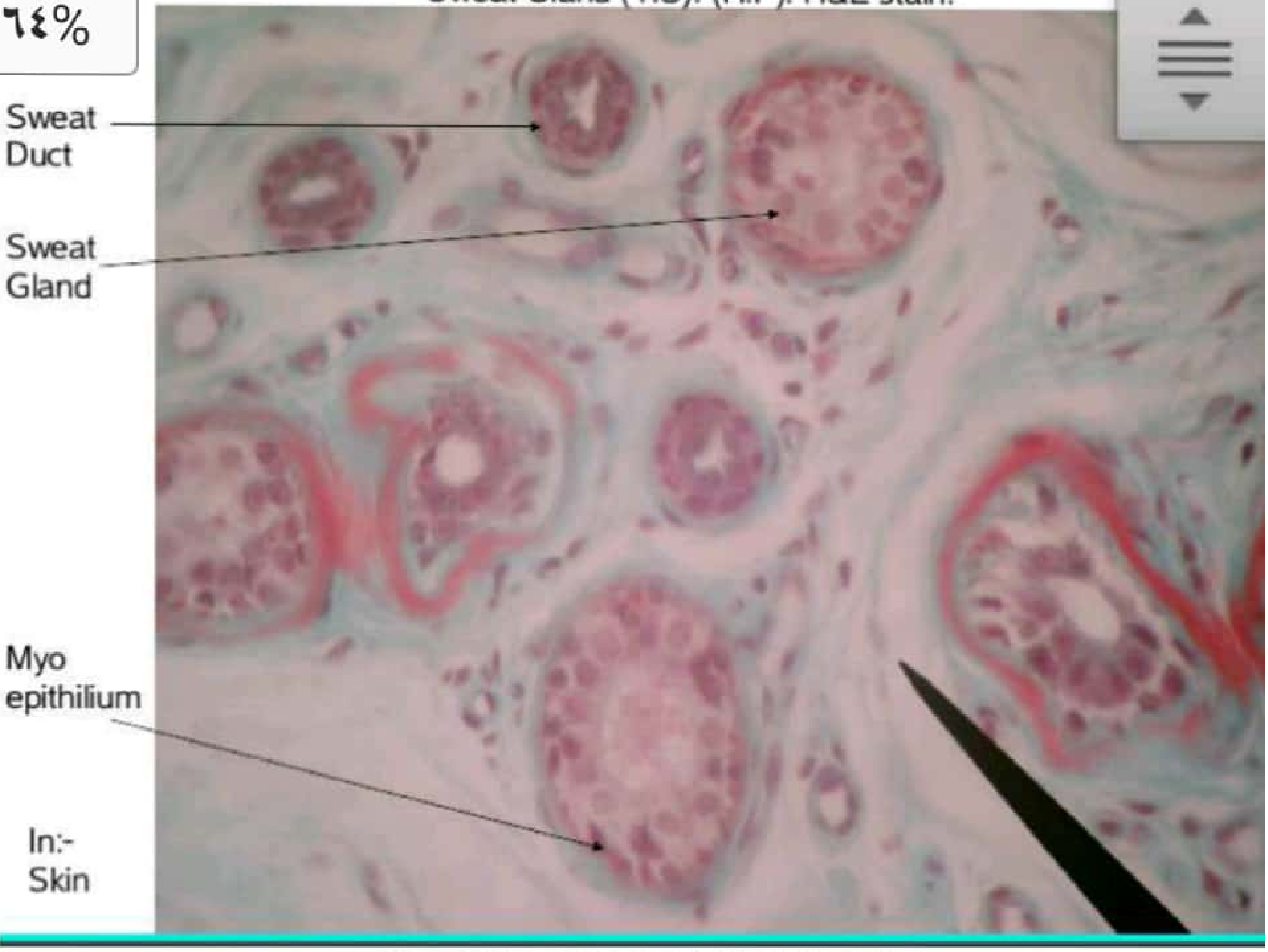
Sweat Gland (T.S). (L.P). H&E stain.


Keratin layer
Sw. G

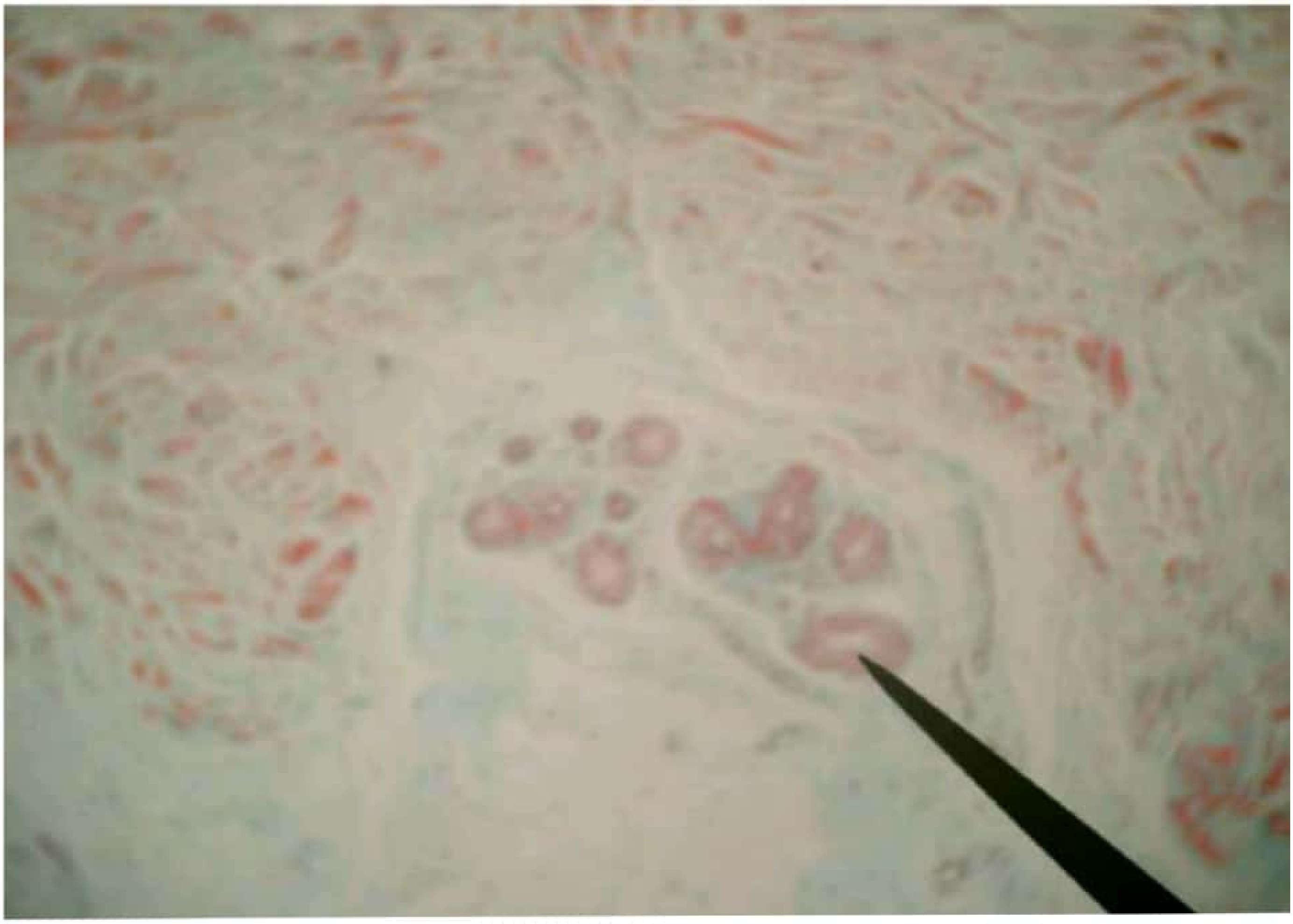


٦٤%

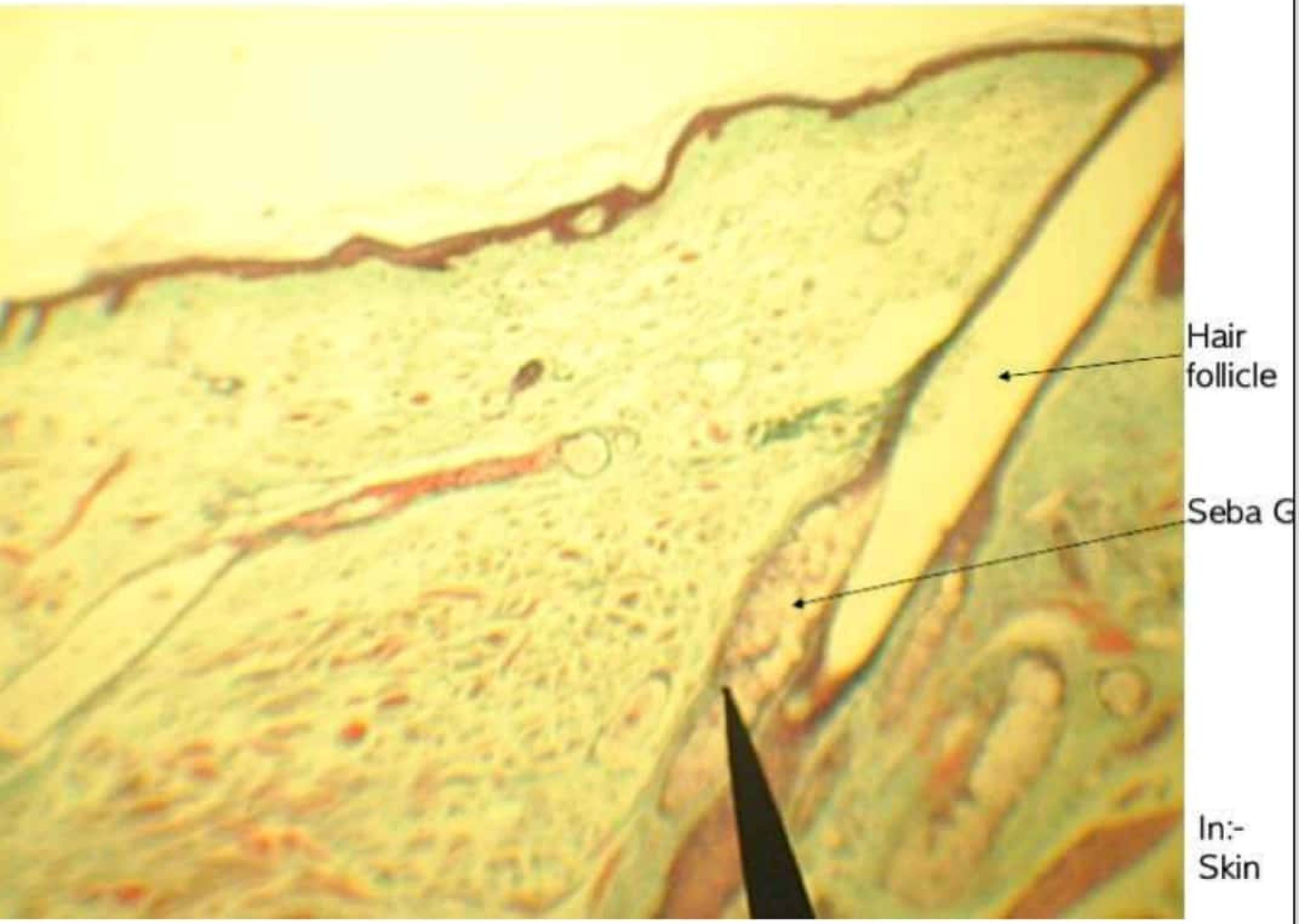
Sweat Gland (T.S). (H.P). H&E stain.


Sweat Duct
Sweat Gland
Myo epithilium
In:- Skin

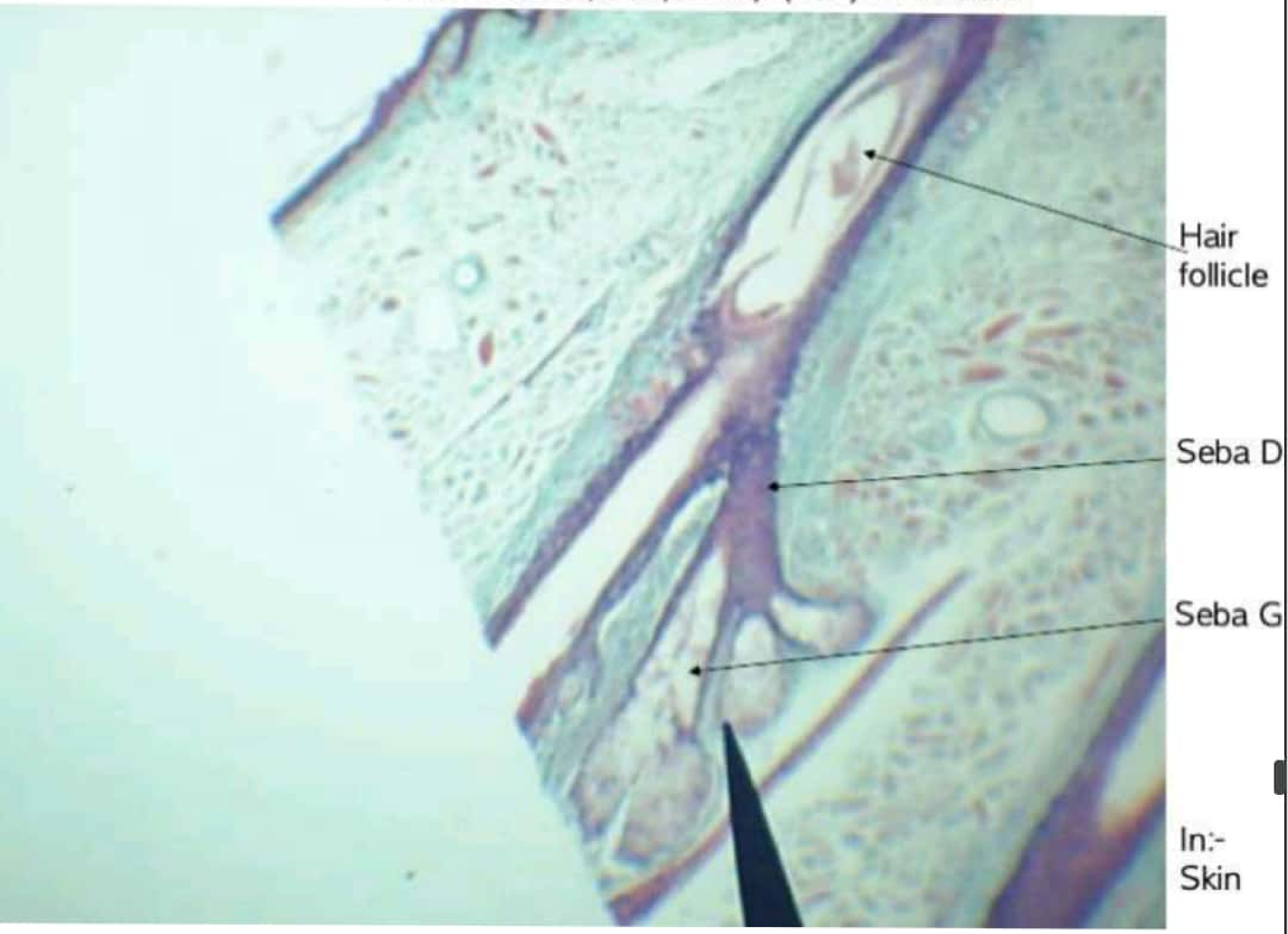
Sweat Gland (T.S). (M.P). H&E stain.



Sebaceous G.(Simple). (M.P). H&E stain

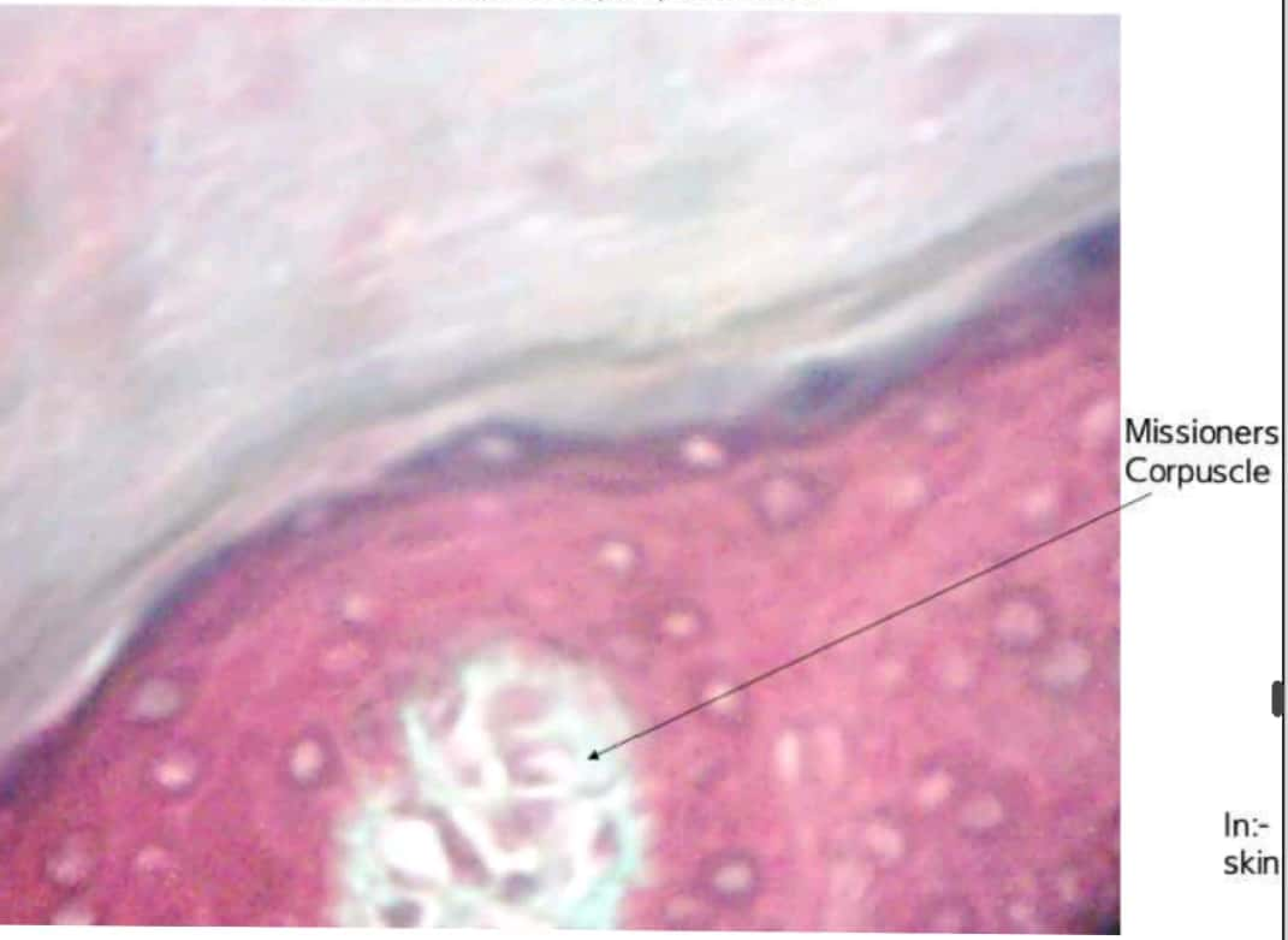

Hair follicle
Seba G
In:- Skin

Sebaceous G.(Compound). (M.P). H&E stain


Hair
follicle
Seba D
Seba G
In:-
Skin

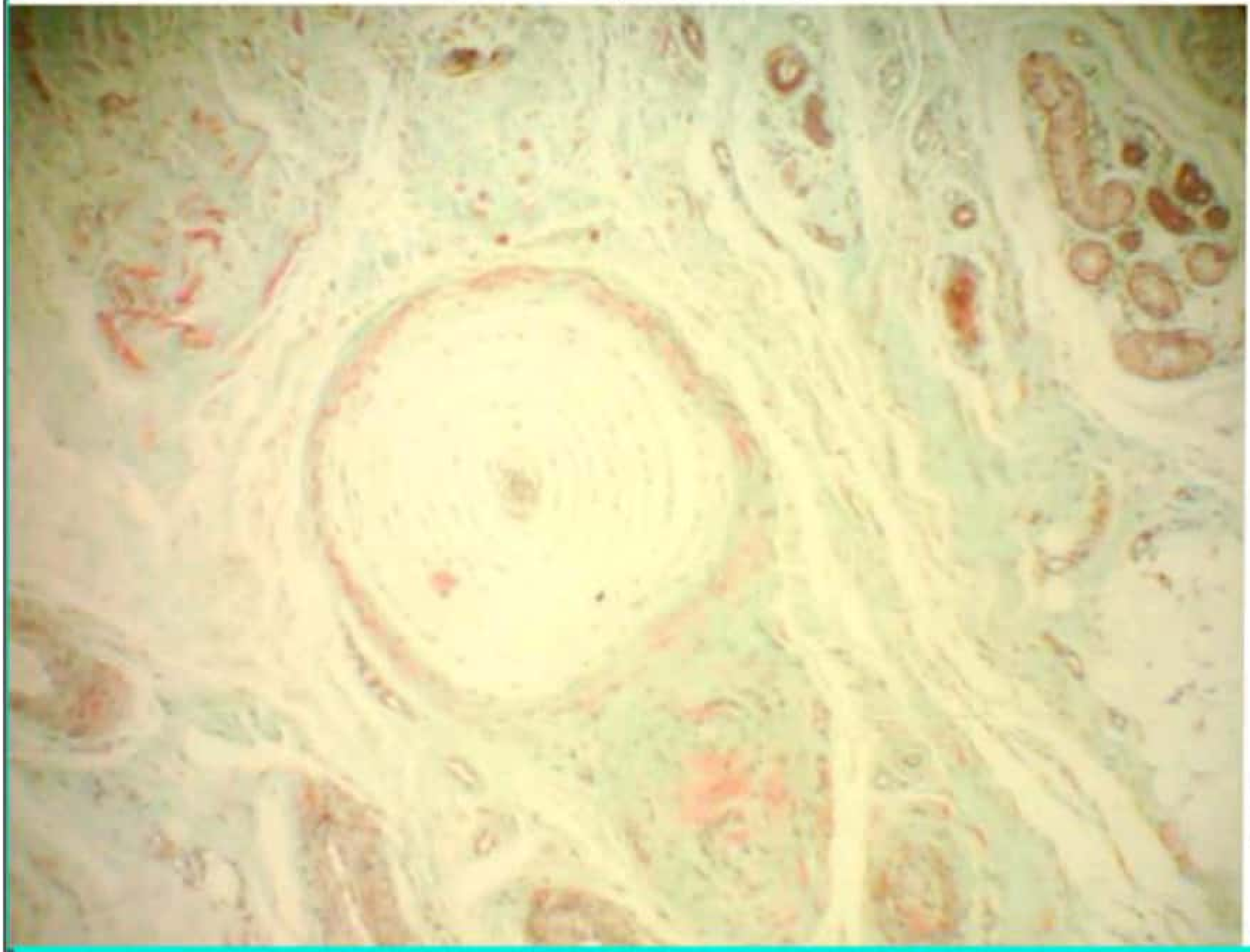
مهم

Missioners Corpuscle. (H.P). H&E stain.


Missioners Corpuscle

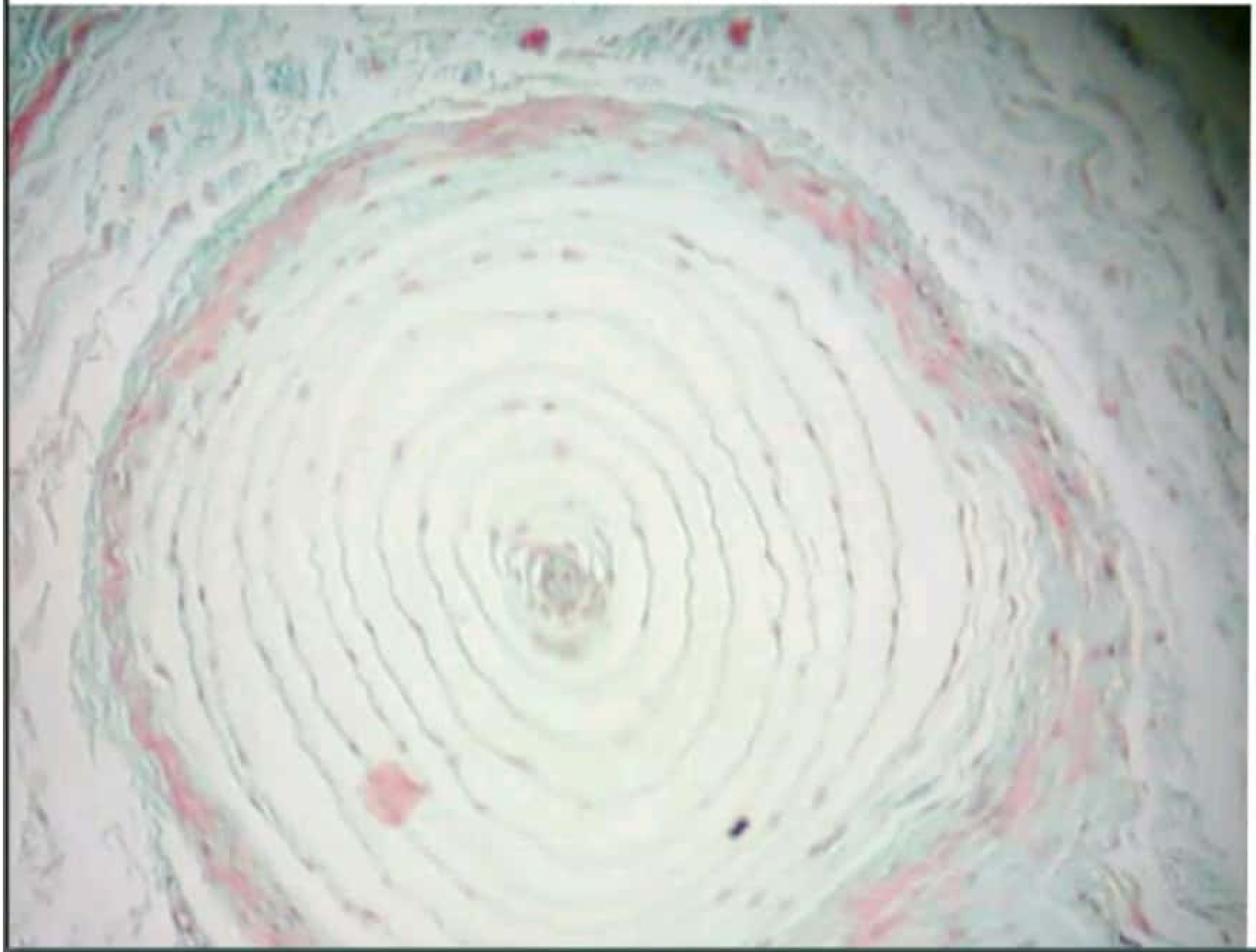
In:-
skin

Pacienian Corpuscle. (L.P). H&E stain.



In:-
skin

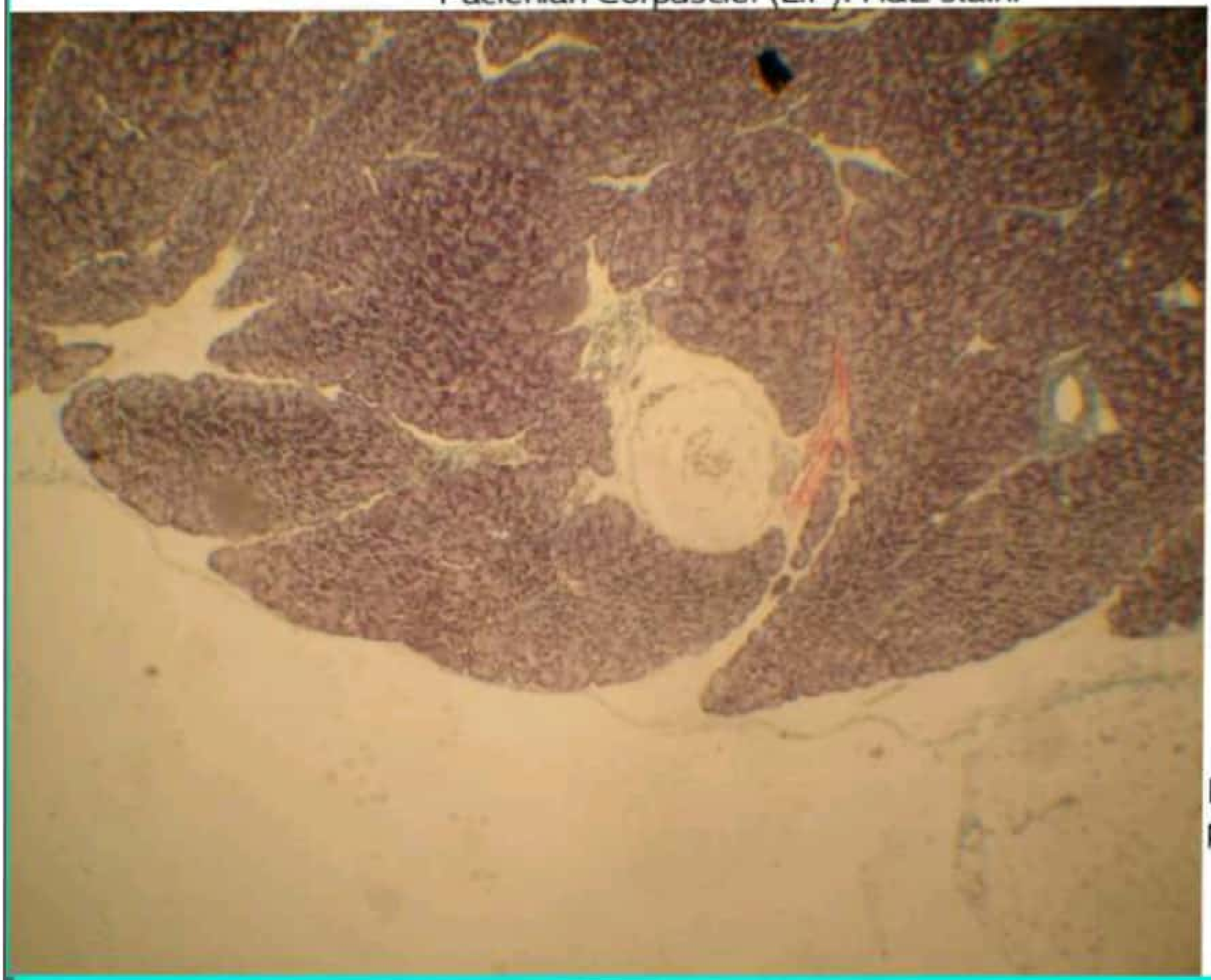
Pacienian Corpuscle. (M.P). H&E stain.



In:-
skin

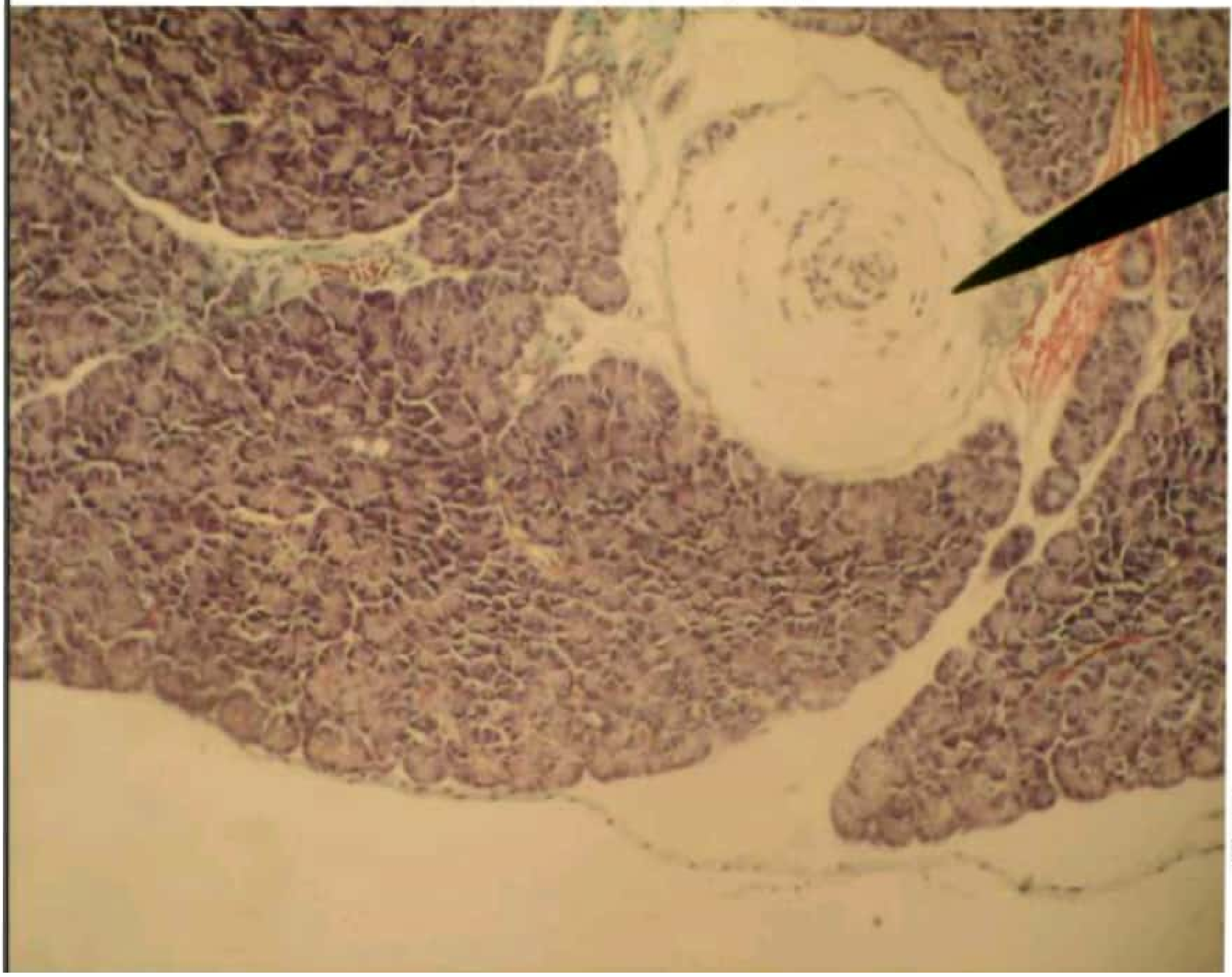
Pacienian Corpuscle. (H.P). H&E stain.

Pacienian Corpuscle. (L.P). H&E stain.

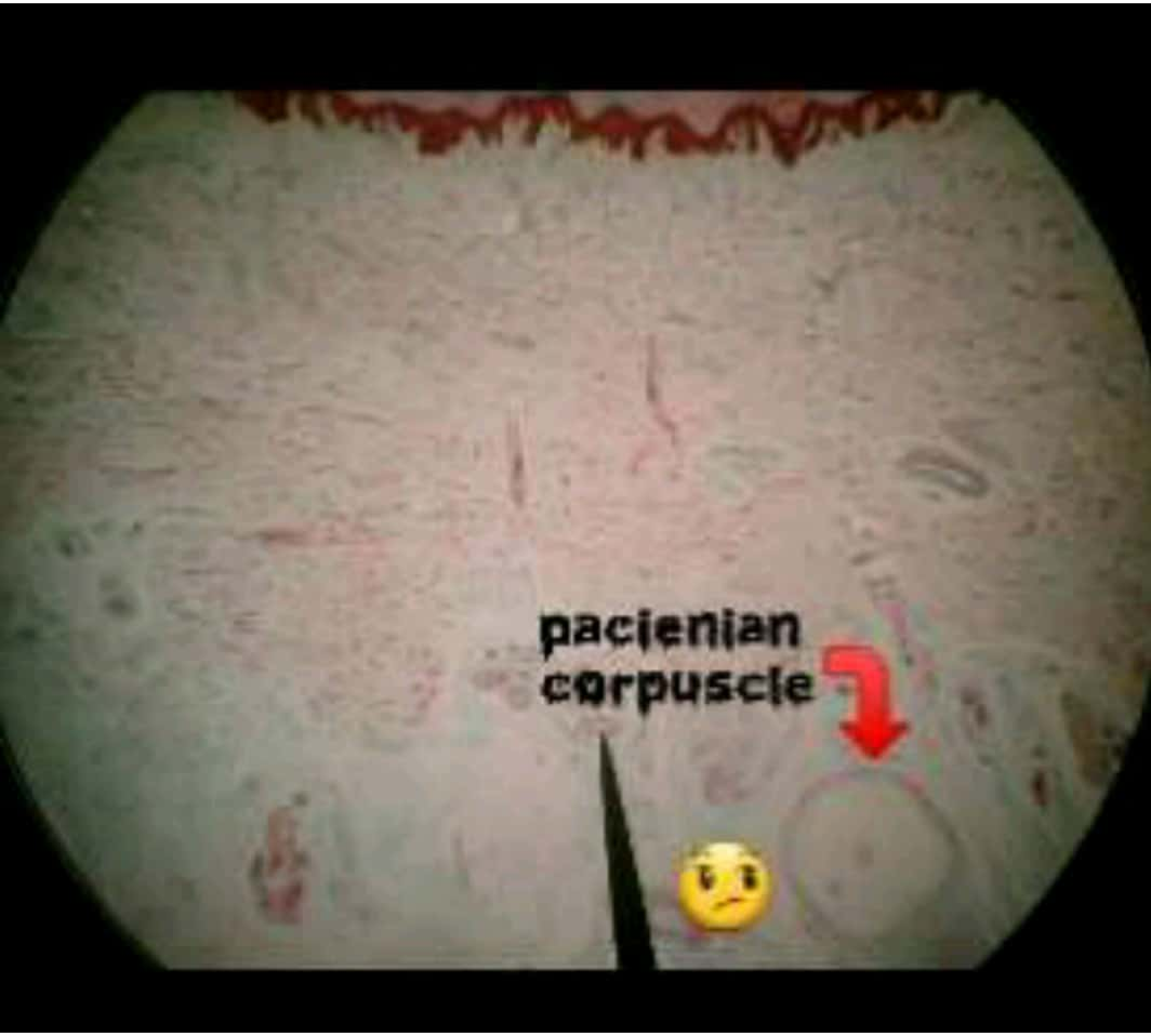


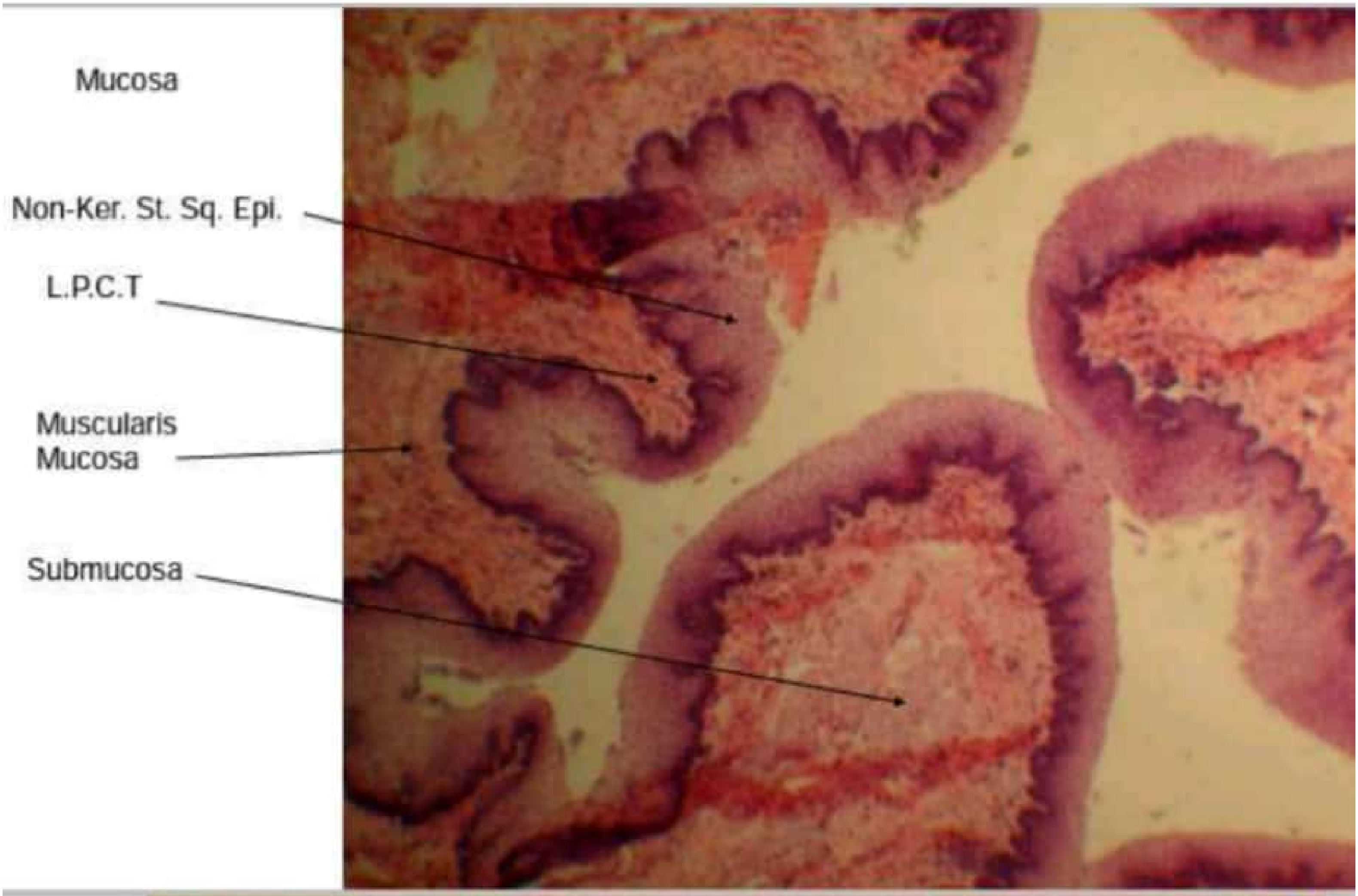
In:-
pancreas

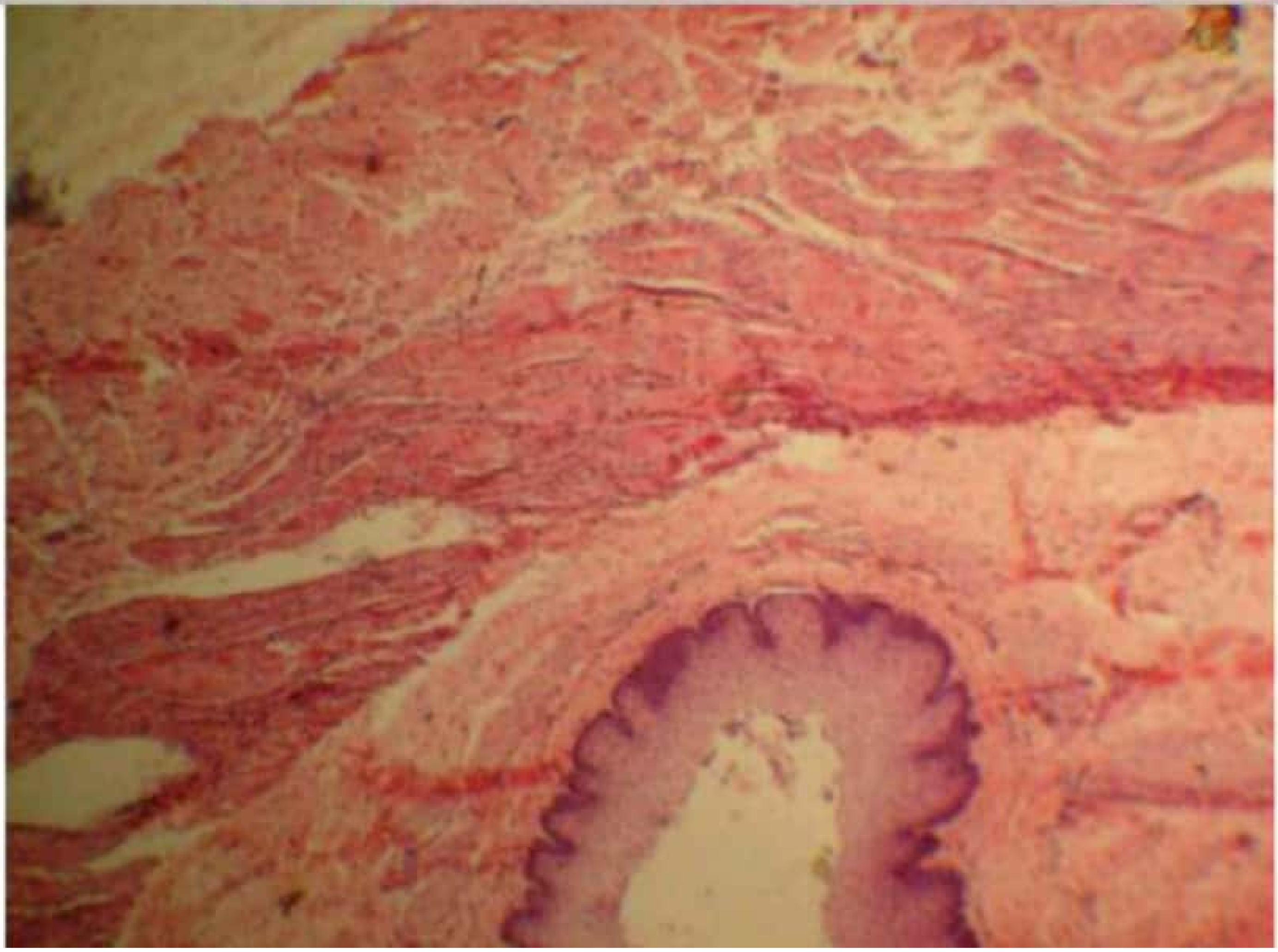
Pacienian Corpuscle. (M.P). H&E stain.

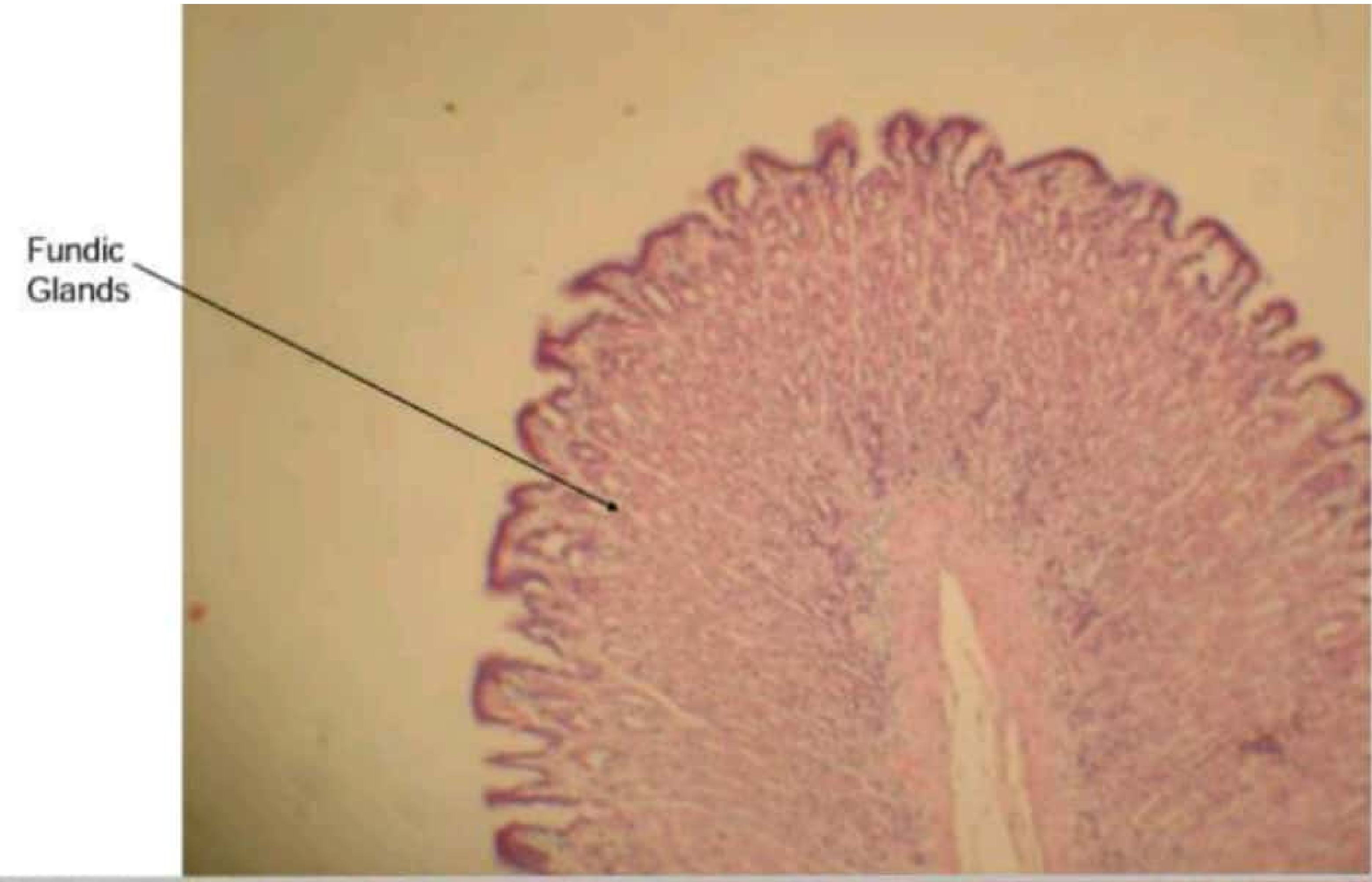


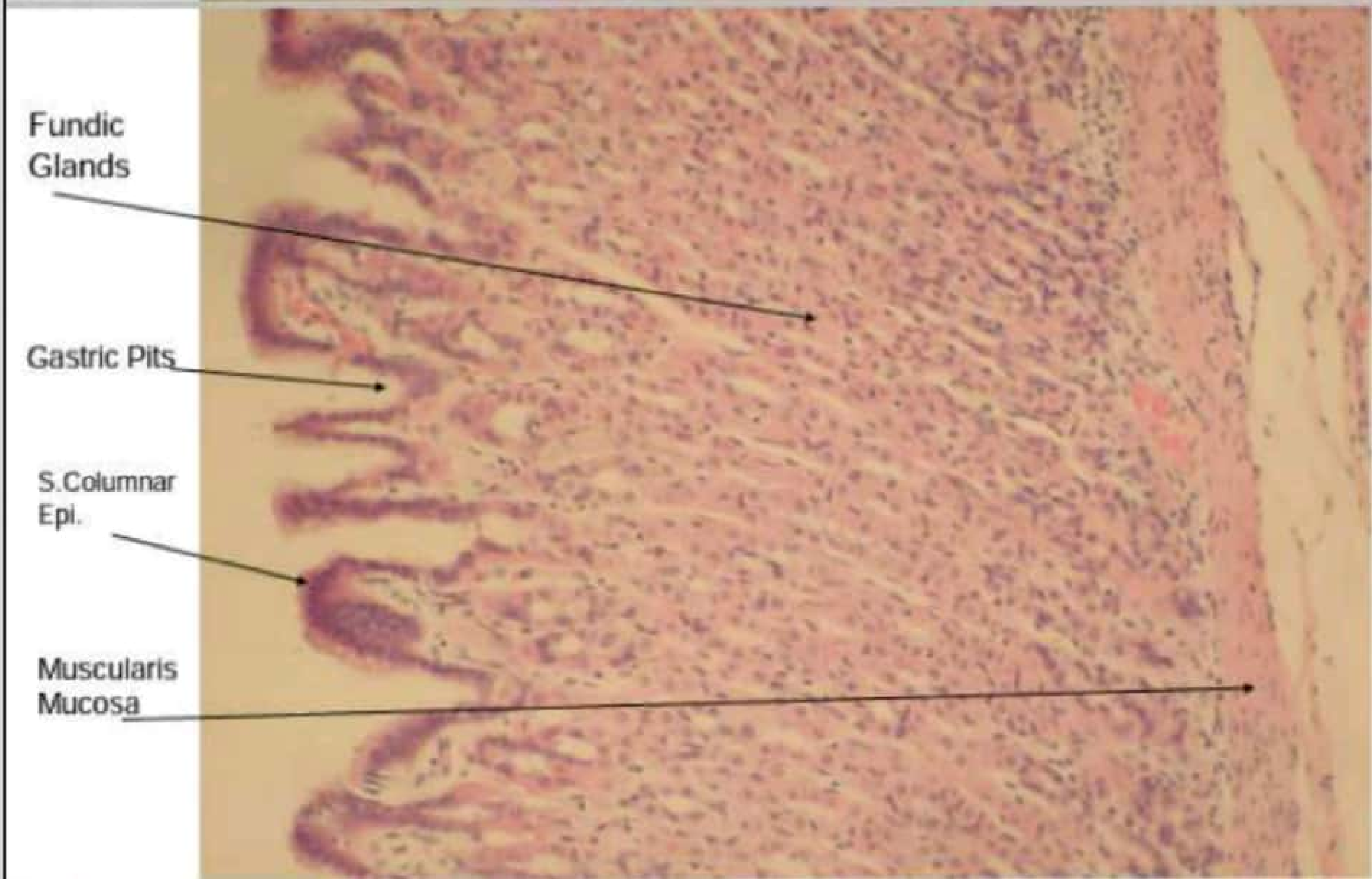
In:-
pancrea

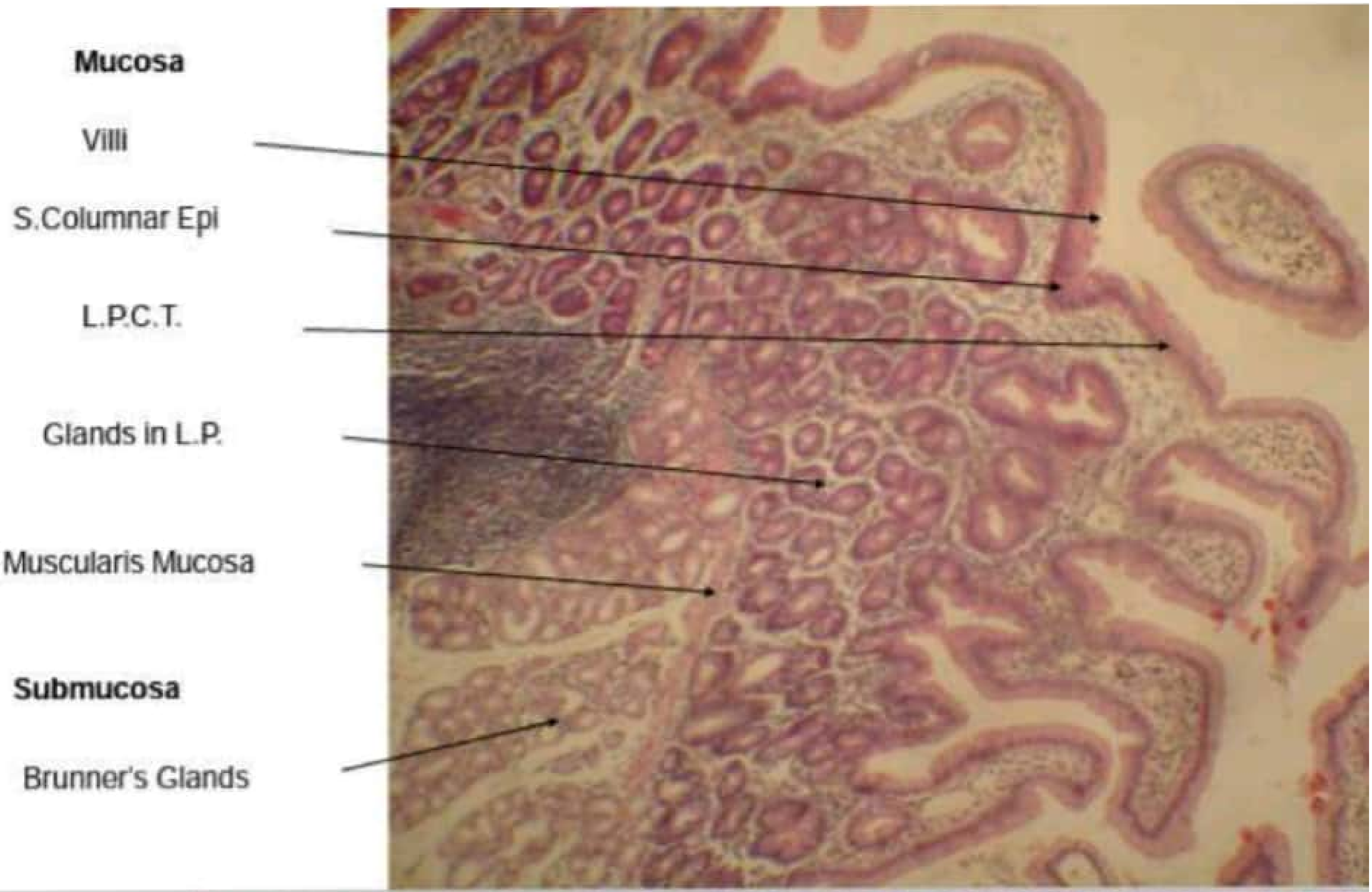

pacienian
corpuscle

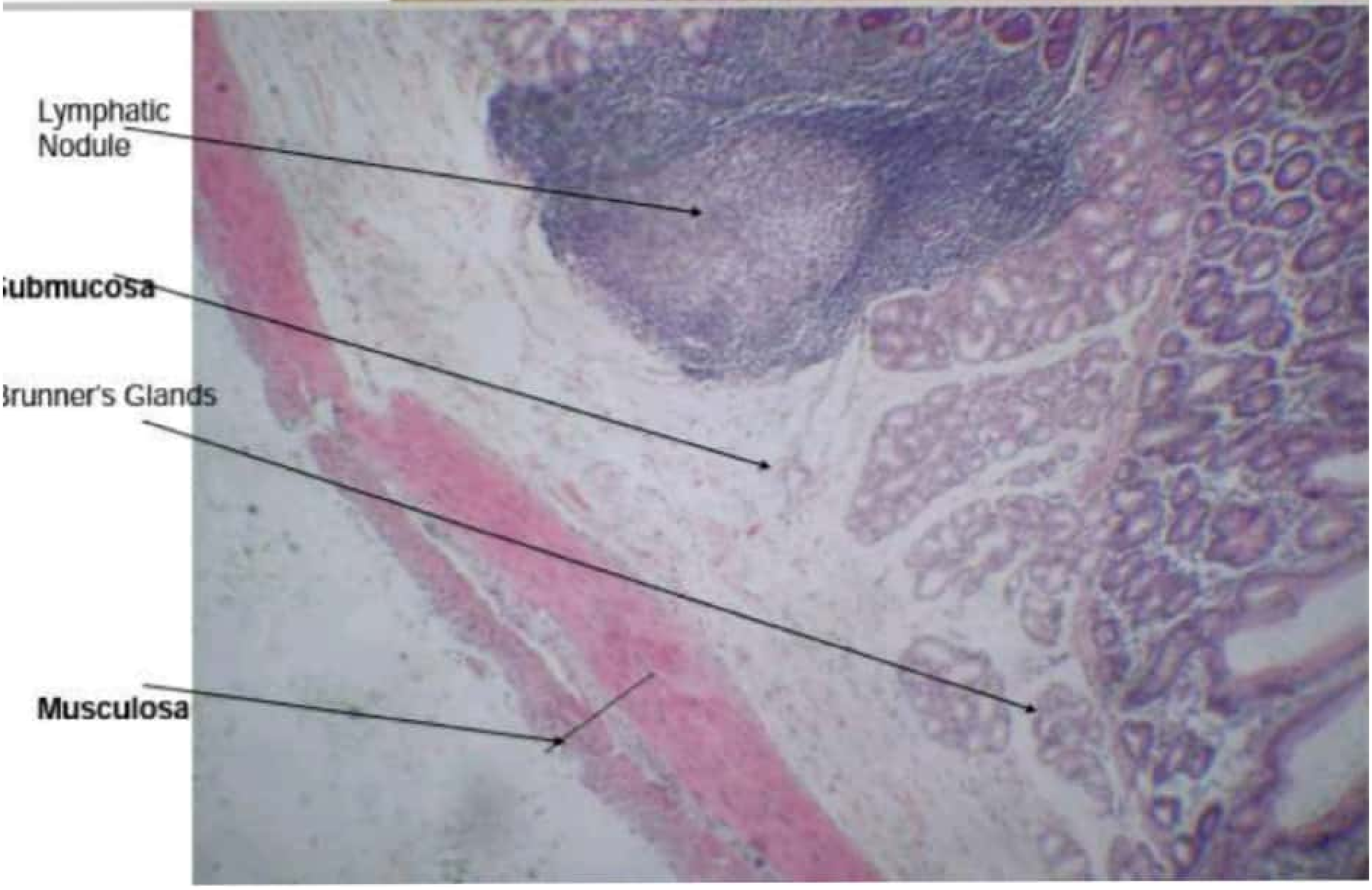

Mucosa
Non-Ker. St. Sq. Epi.
L.P.C.T
Muscularis Mucosa
Submucosa

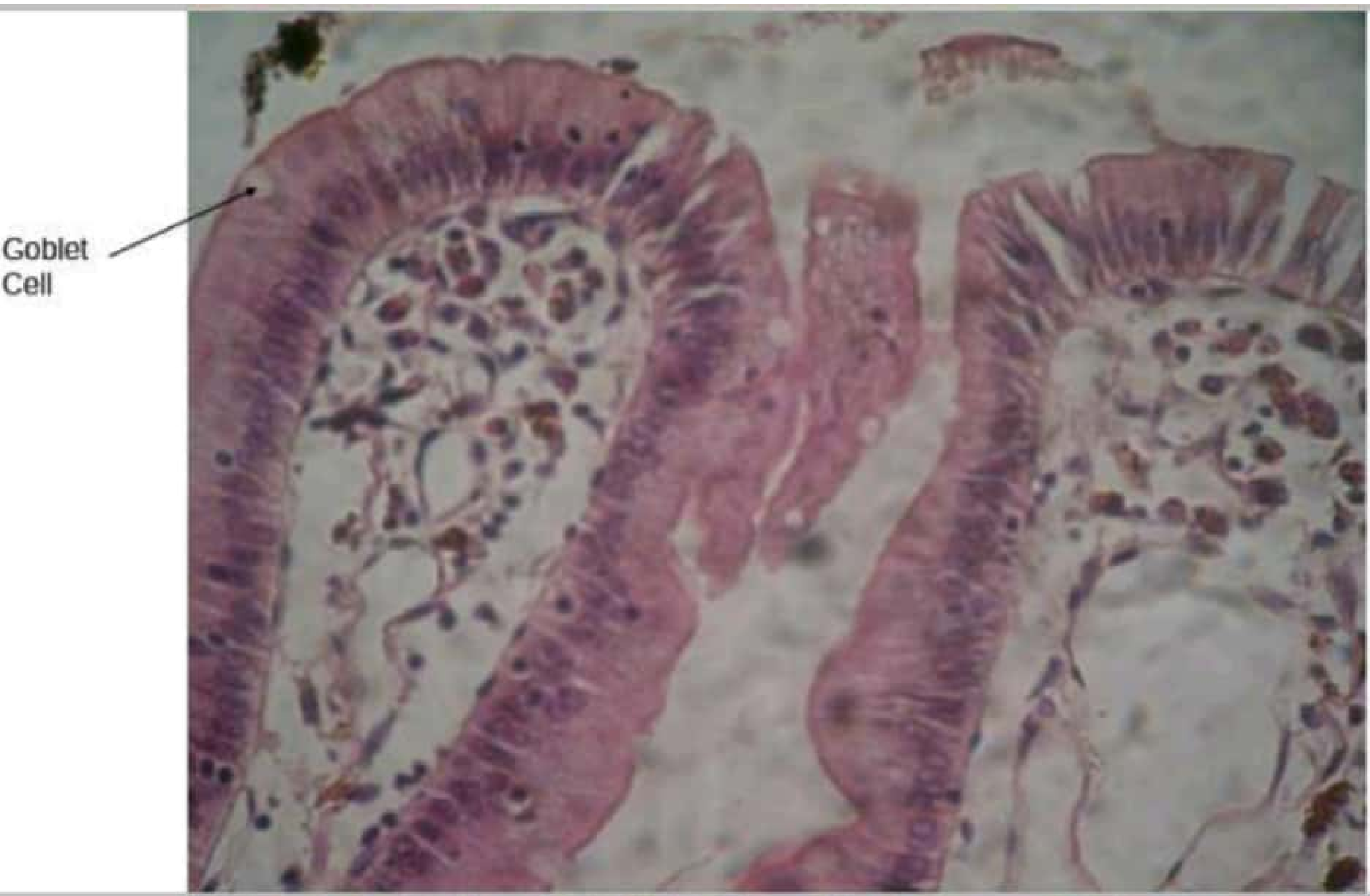


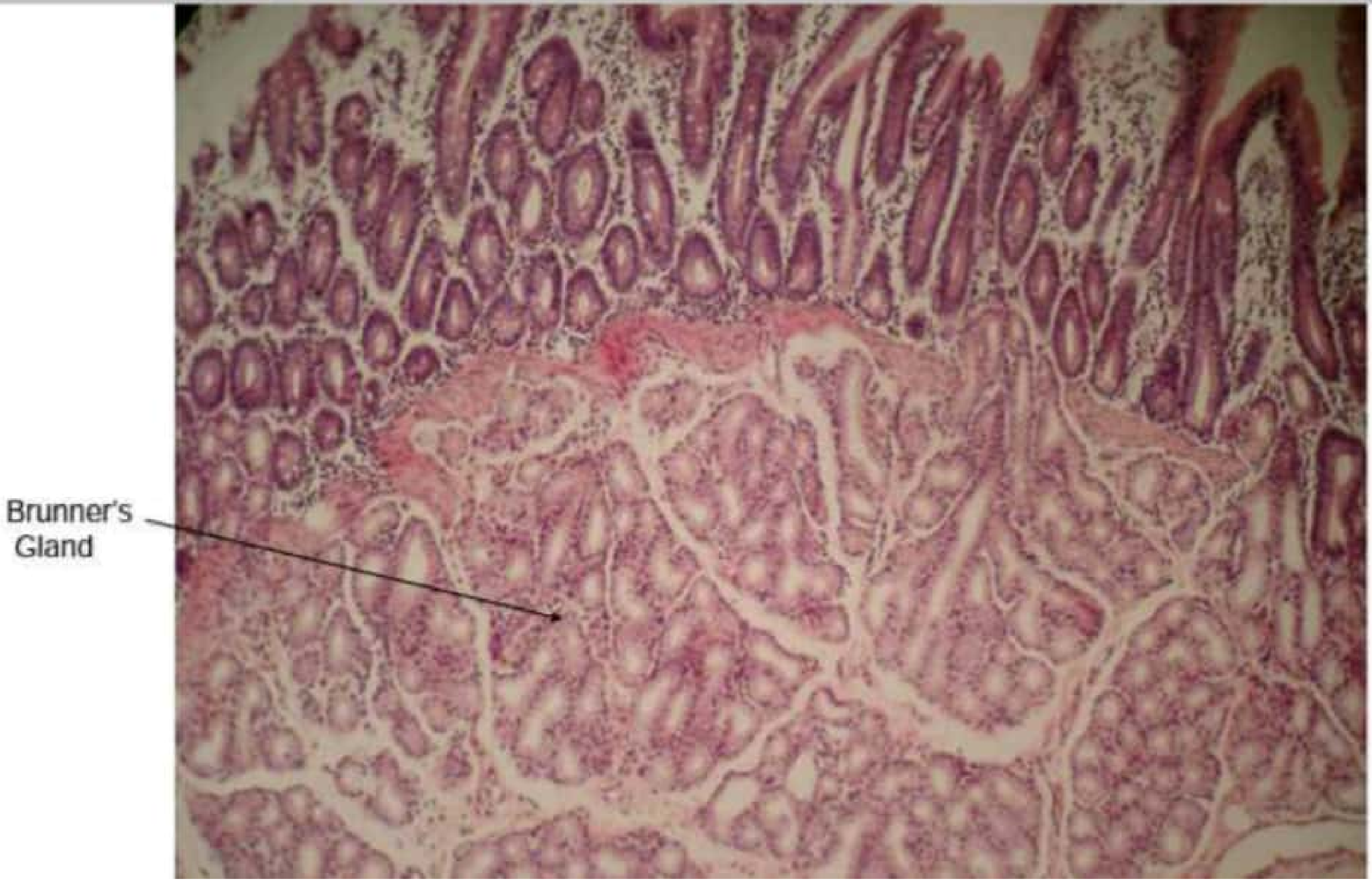

Fundic
Glands

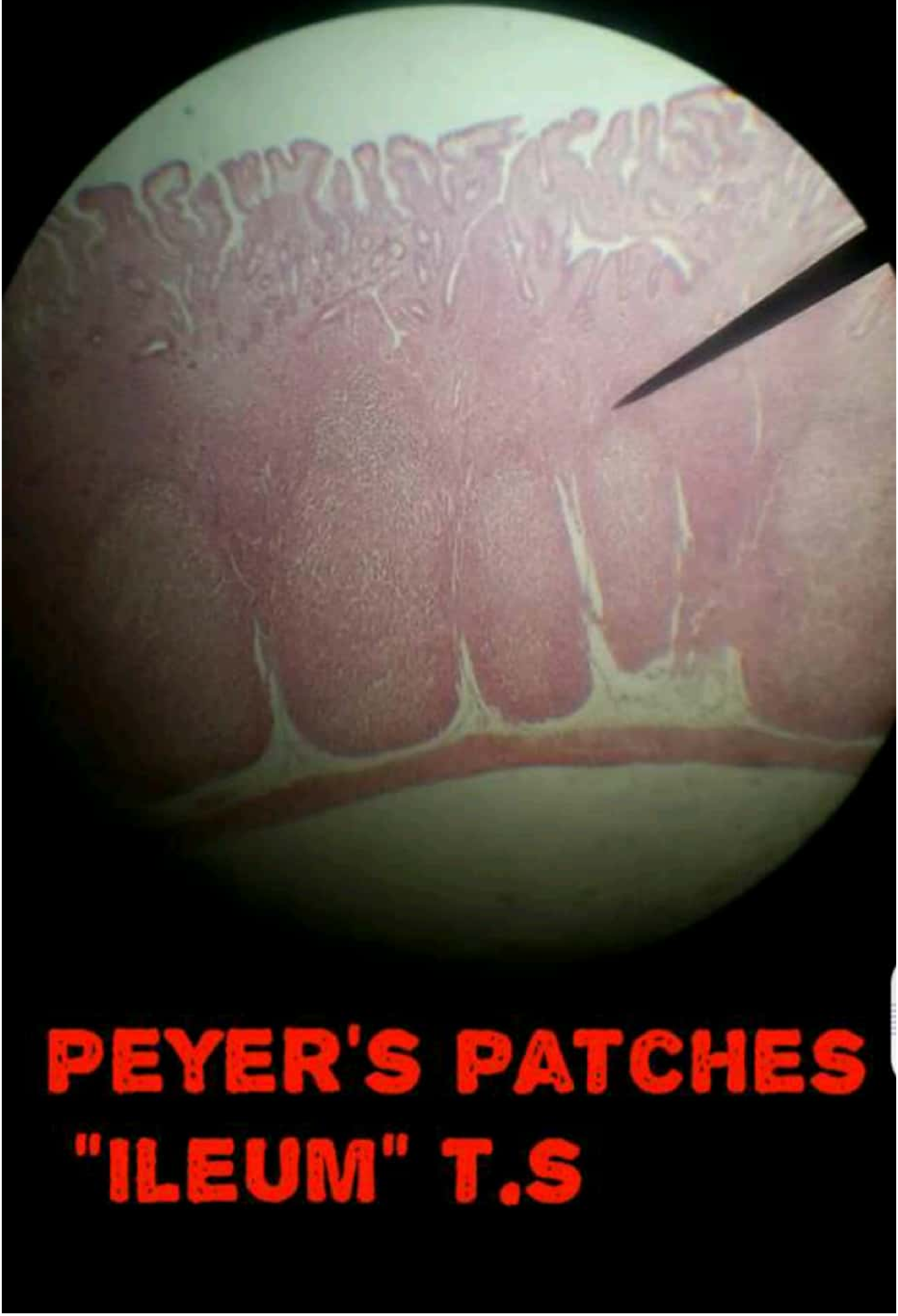

Fundic
Glands
Gastric Pits
S.Columnar
Epi.
Muscularis
Mucosa


Mucosa
Villi
S.Columnar Epi
L.P.C.T.
Glands in L.P.
Muscularis Mucosa
Submucosa
Brunner's Glands

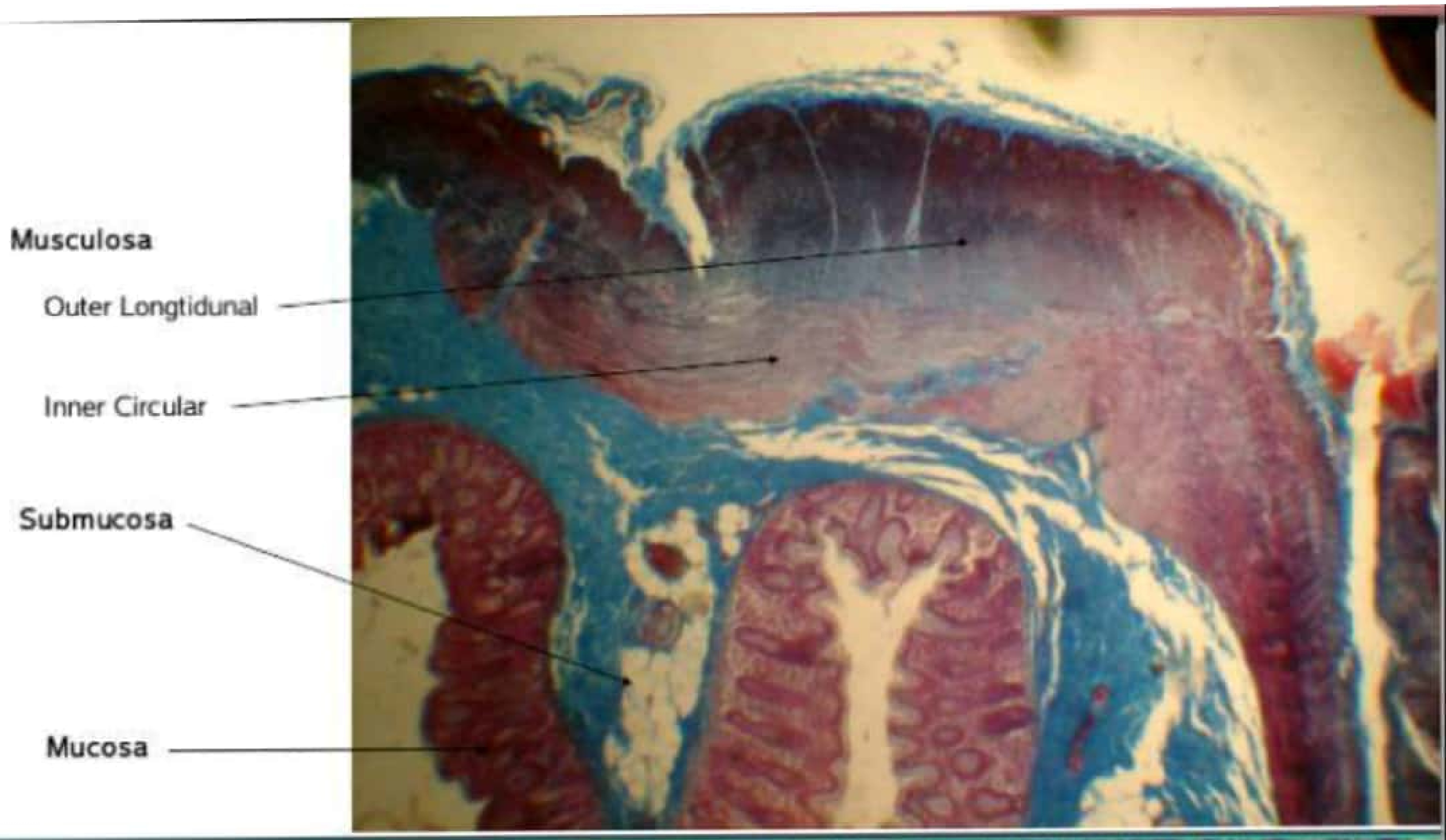

Lymphatic Nodule
ubmucosa
runner's Glands
Musculosa


Goblet Cell

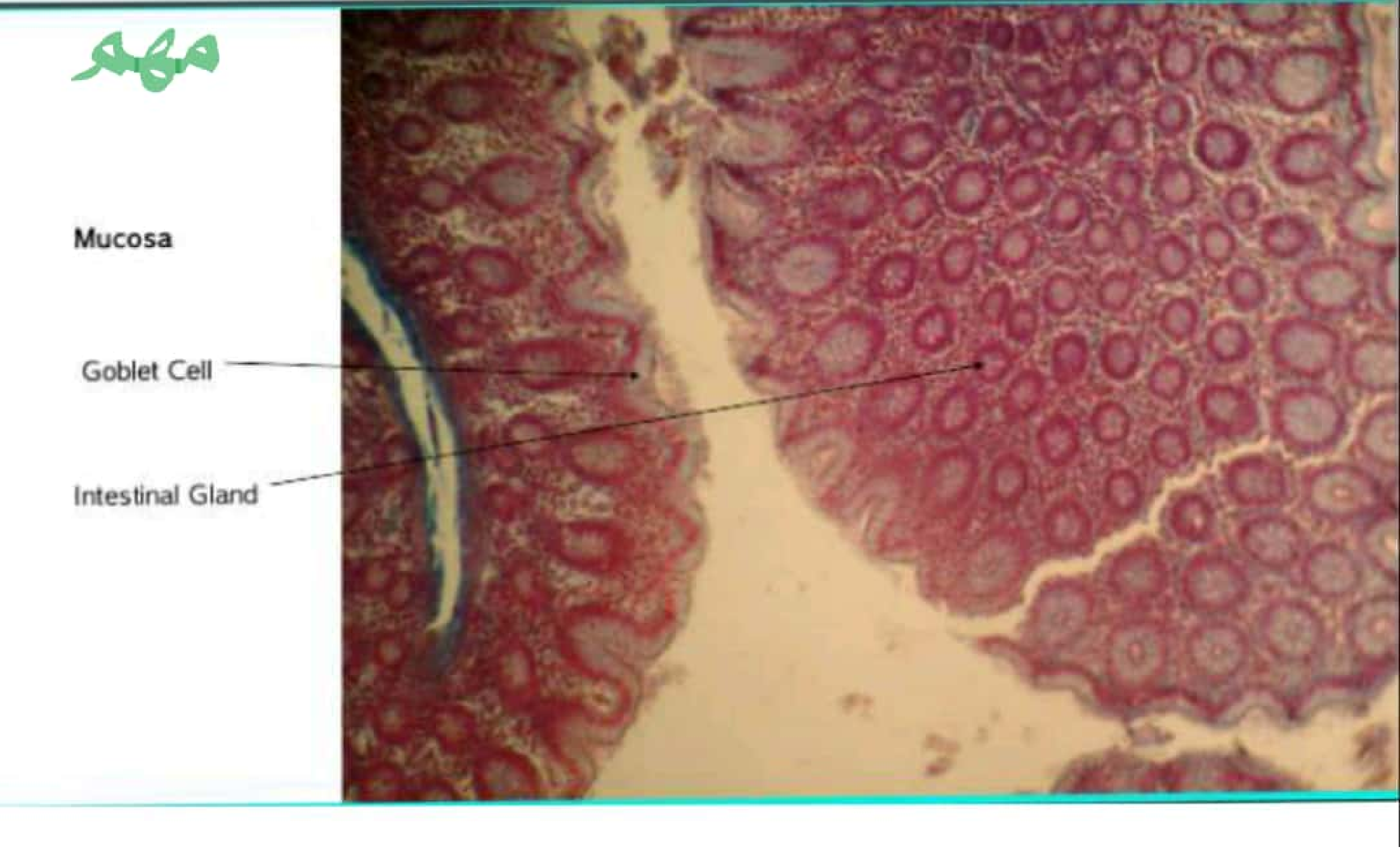

Brunner's Gland



PEYER'S PATCHES "ILEUM" T.S

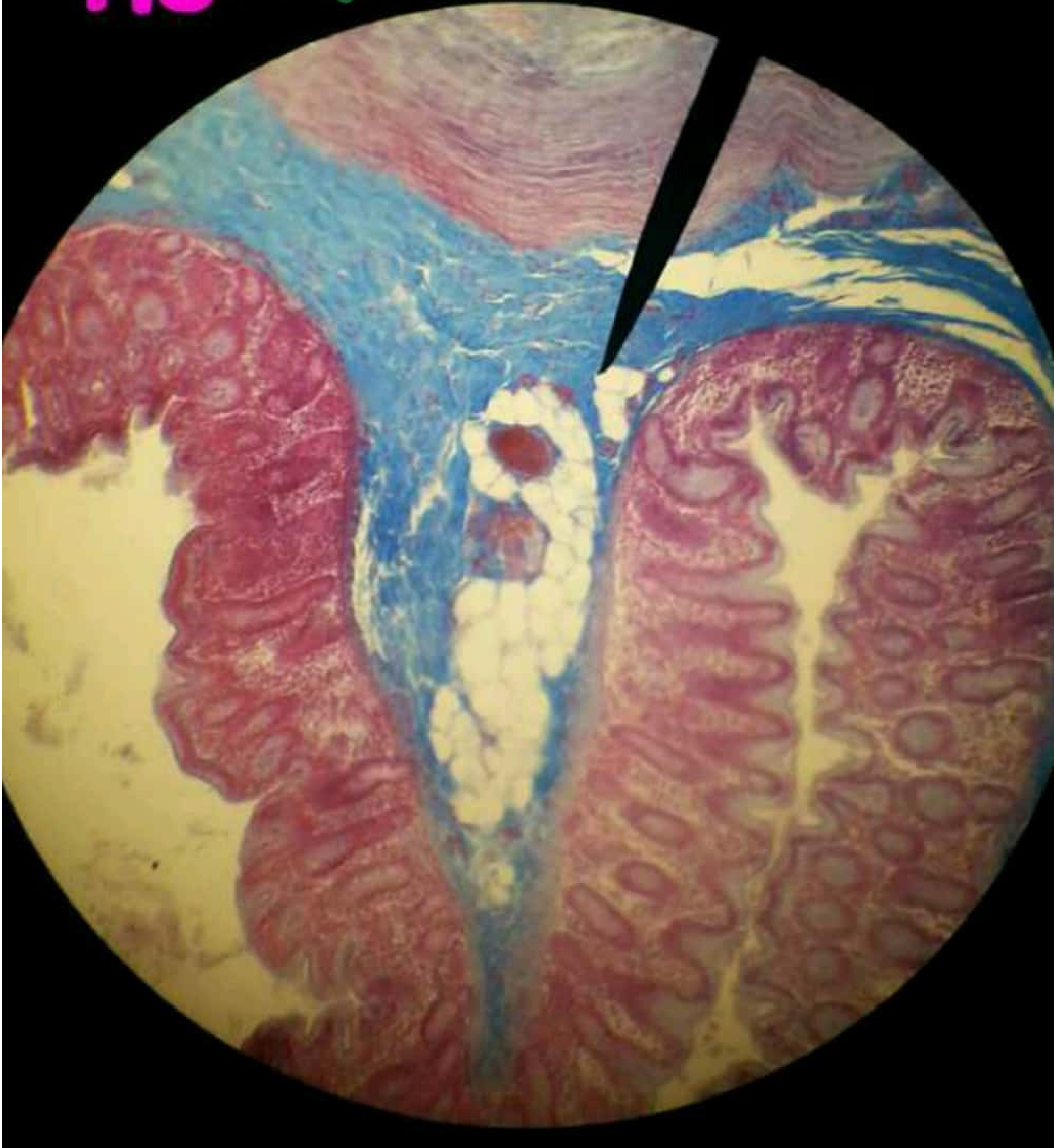

Musculosa
Outer Longtidunal
Inner Circular
Submucosa
Mucosa

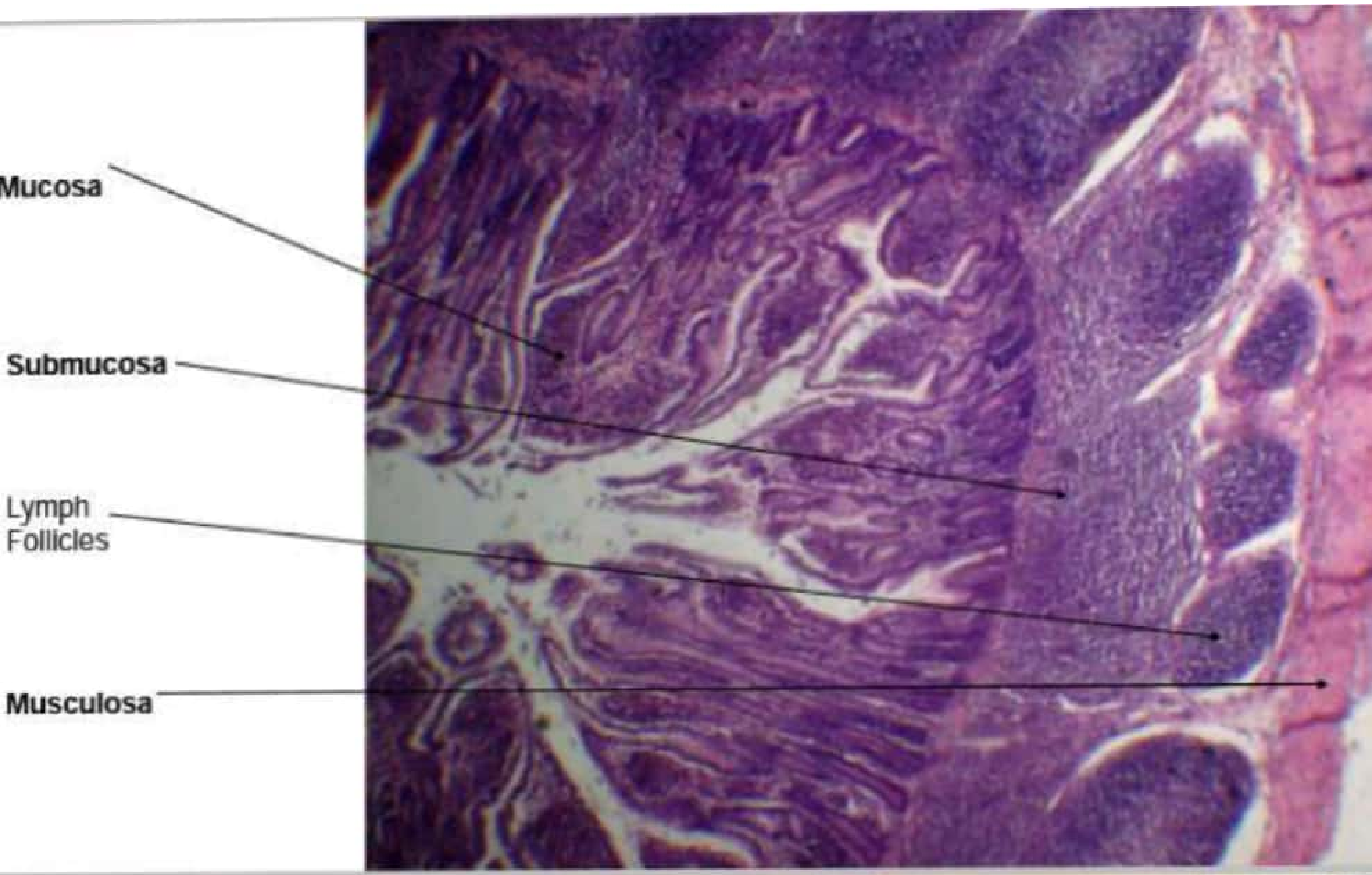
مهم

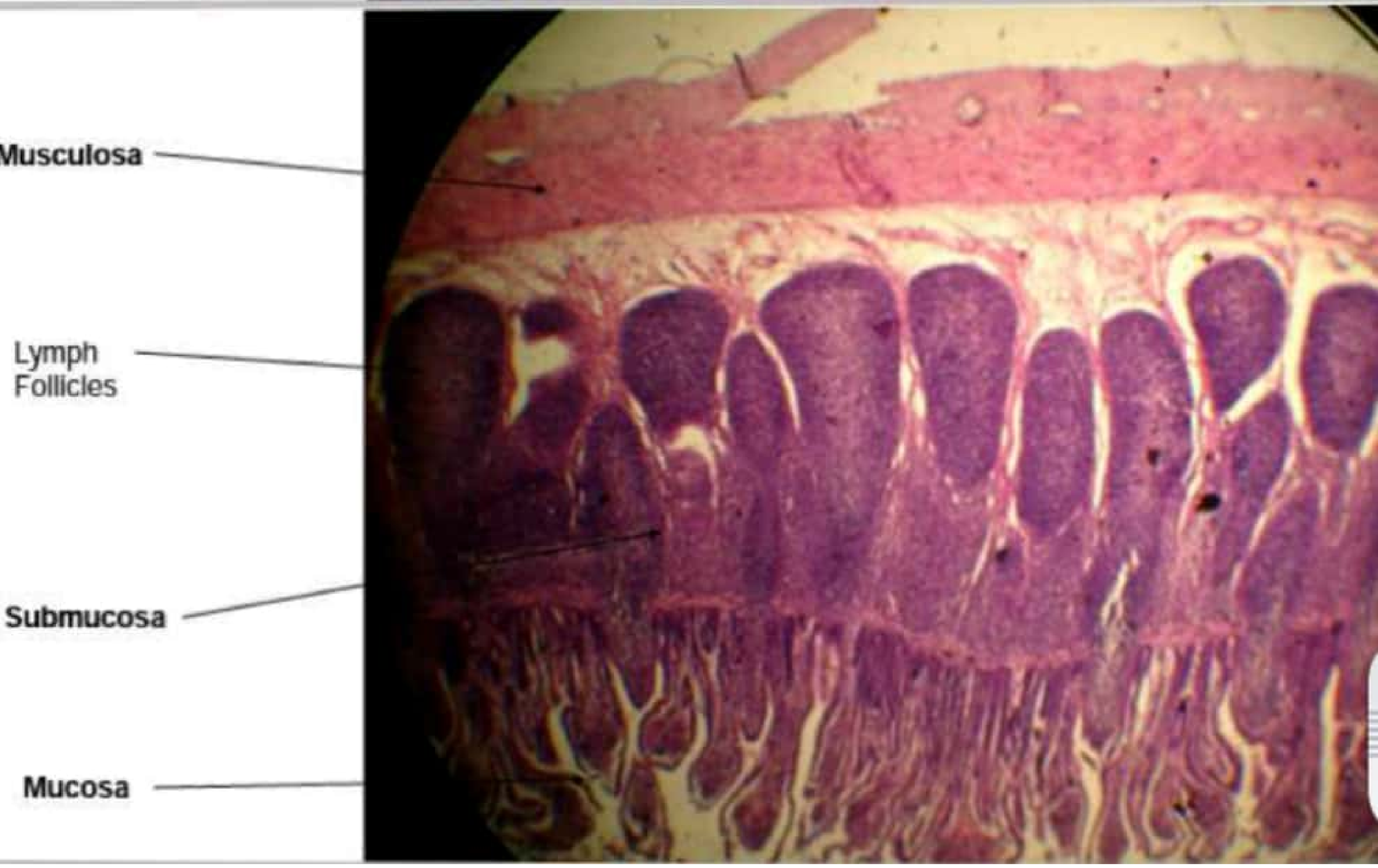

Mucosa
Goblet Cell
Intestinal Gland

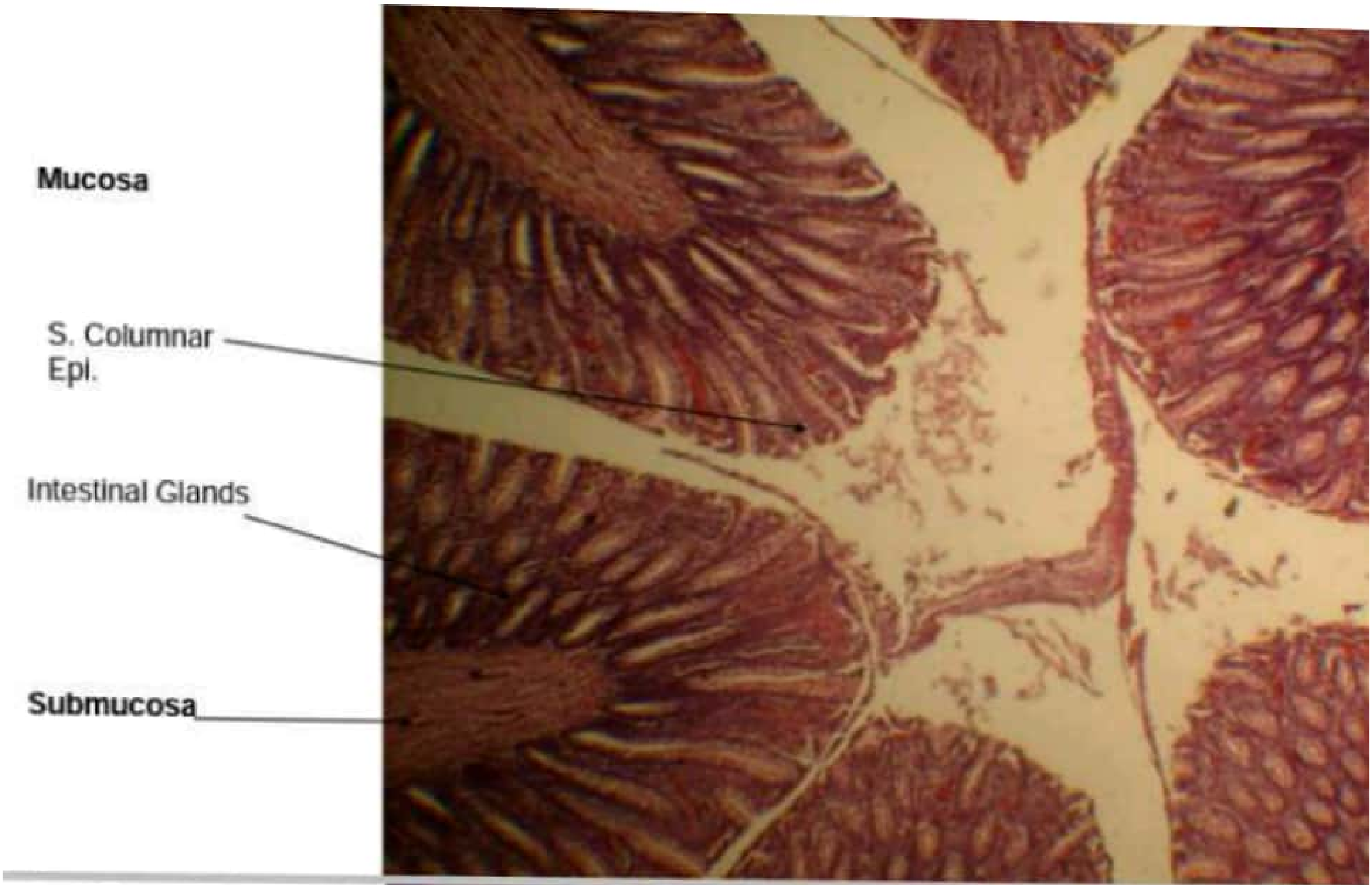
COLON
(LARGE INTESTINE)
T.S

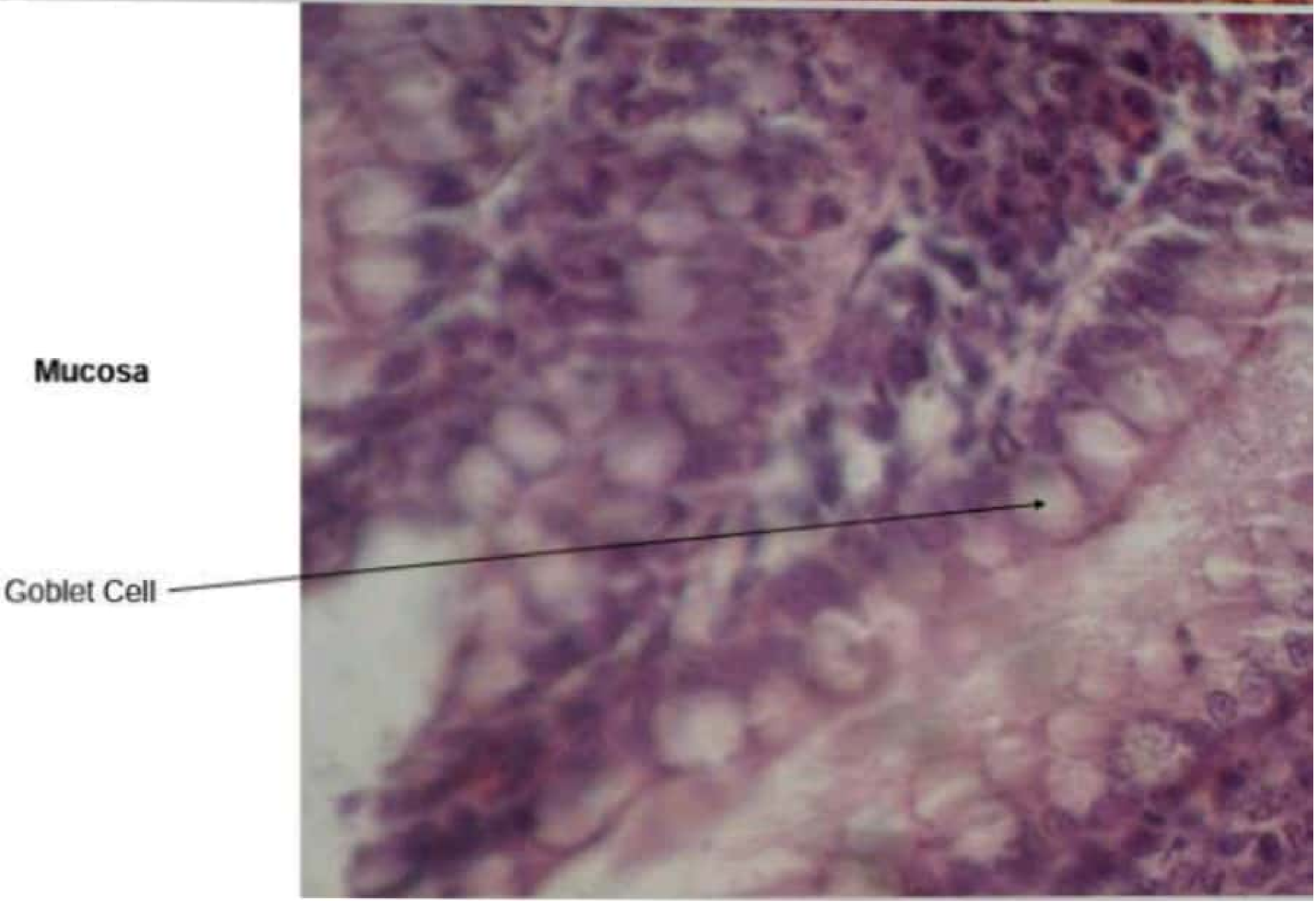
مهم

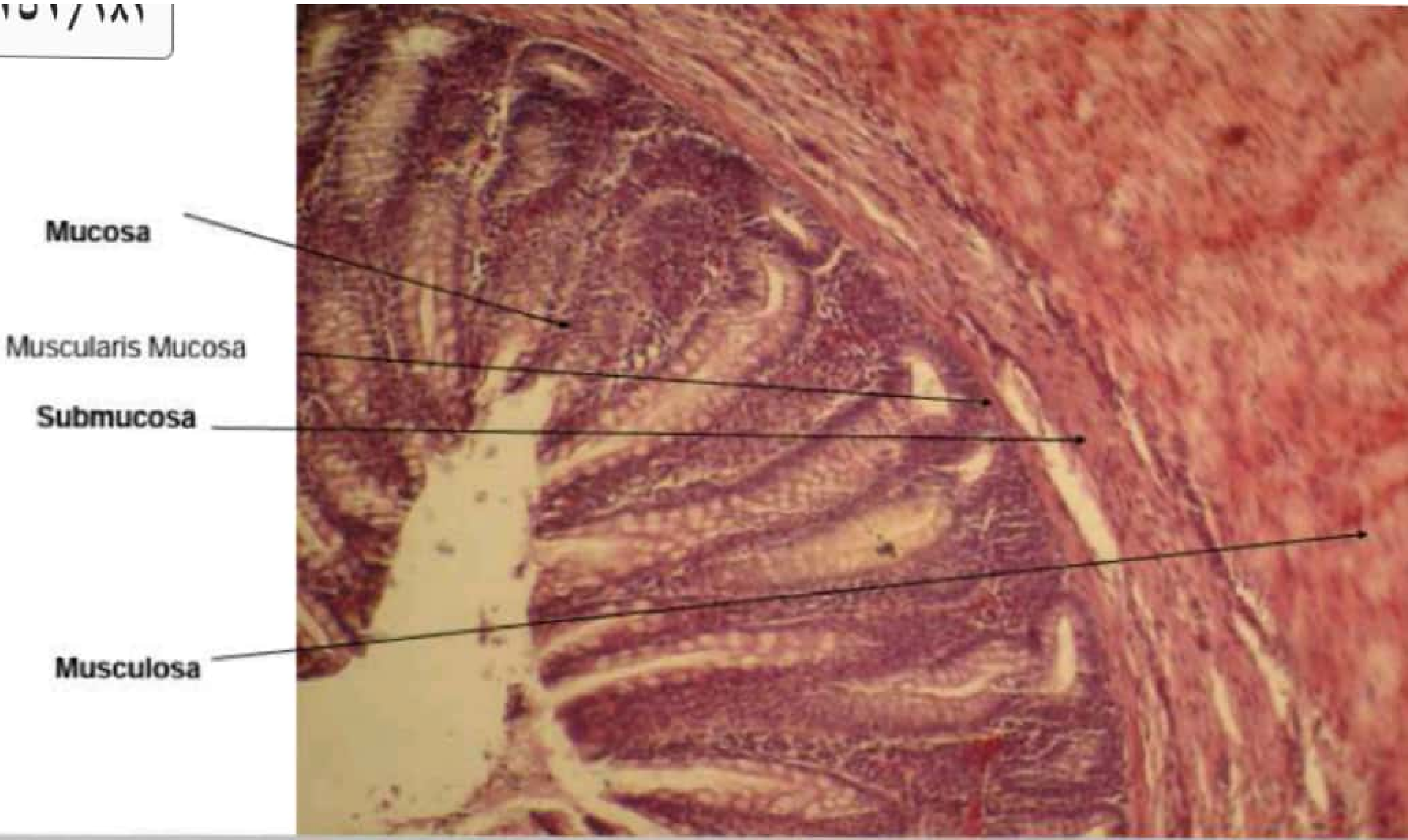


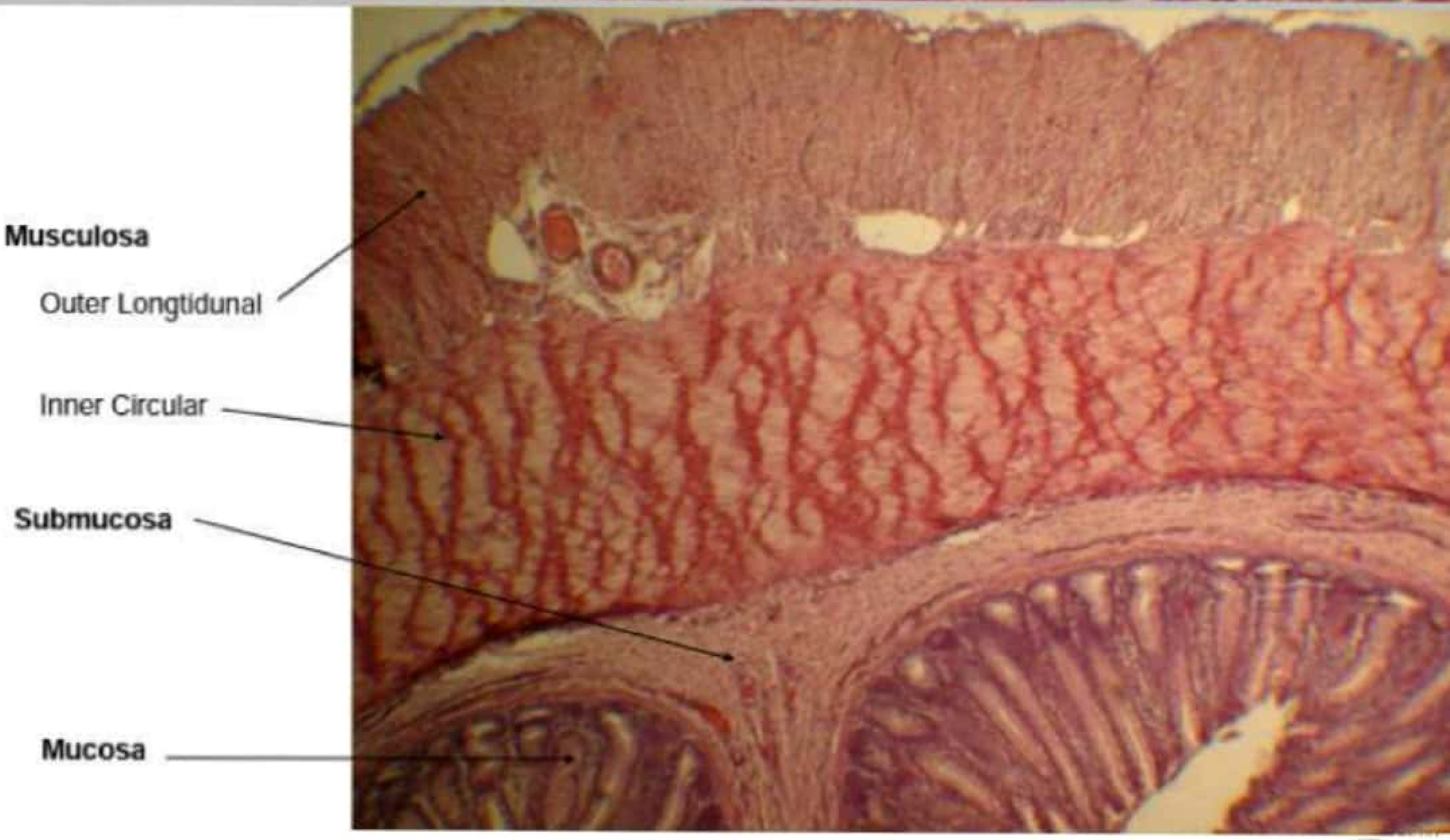

Mucosa
Submucosa
Lymph Follicles
Musculosa

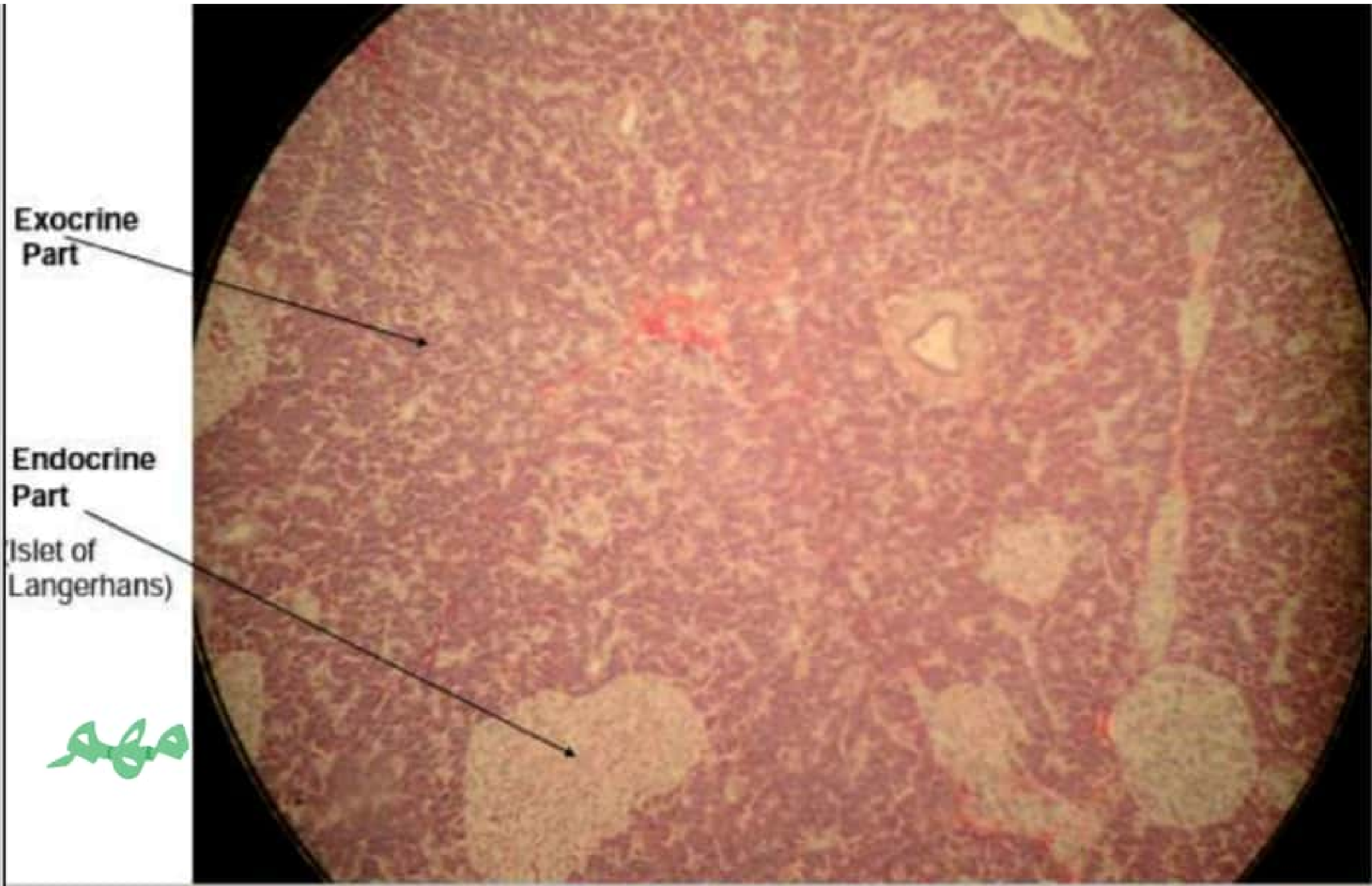

Musculosa
Lymph Follicles
Submucosa
Mucosa


Mucosa
S. Columnar Epi.
Intestinal Glands
Submucosa

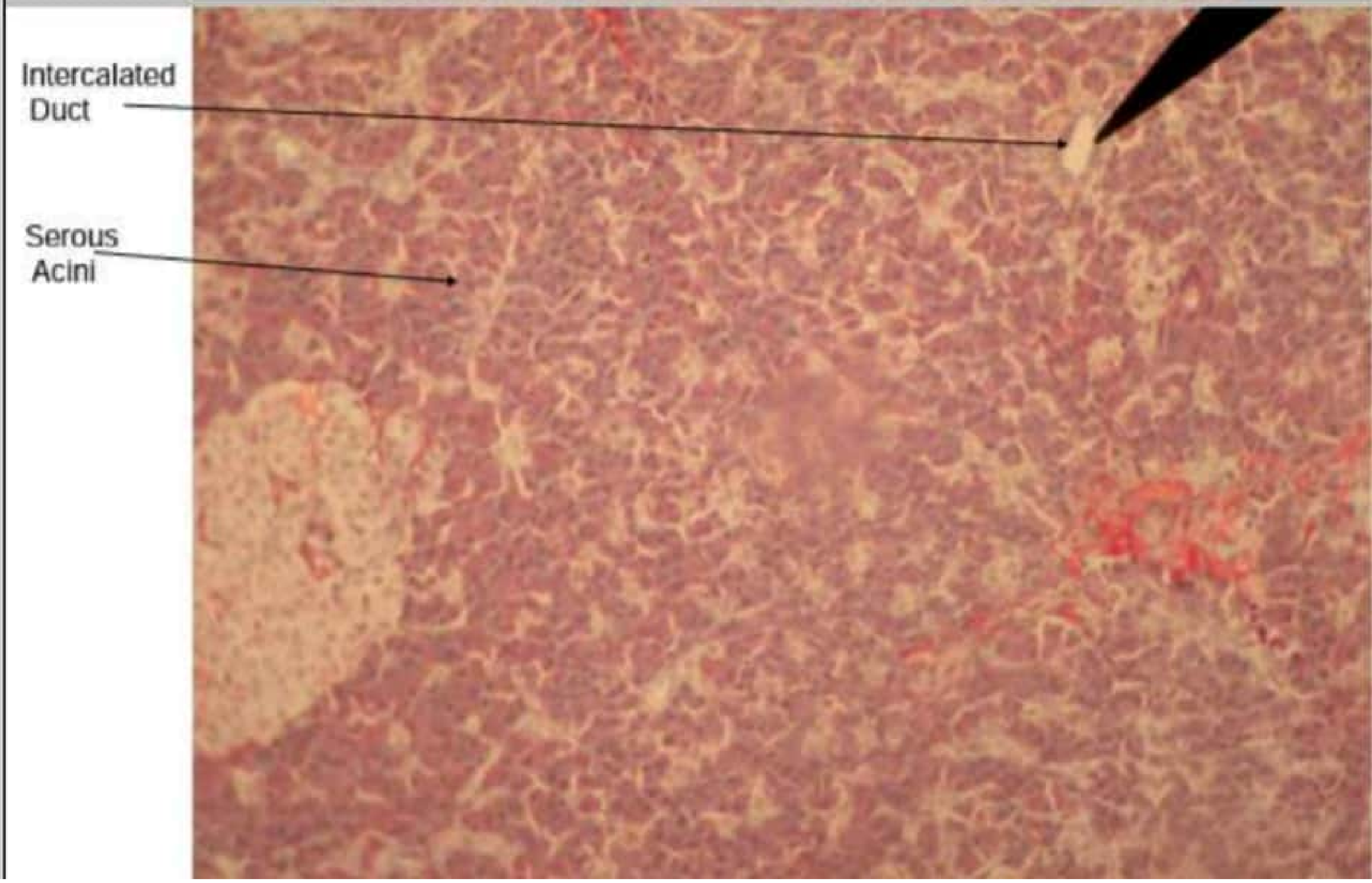

Mucosa
Goblet Cell

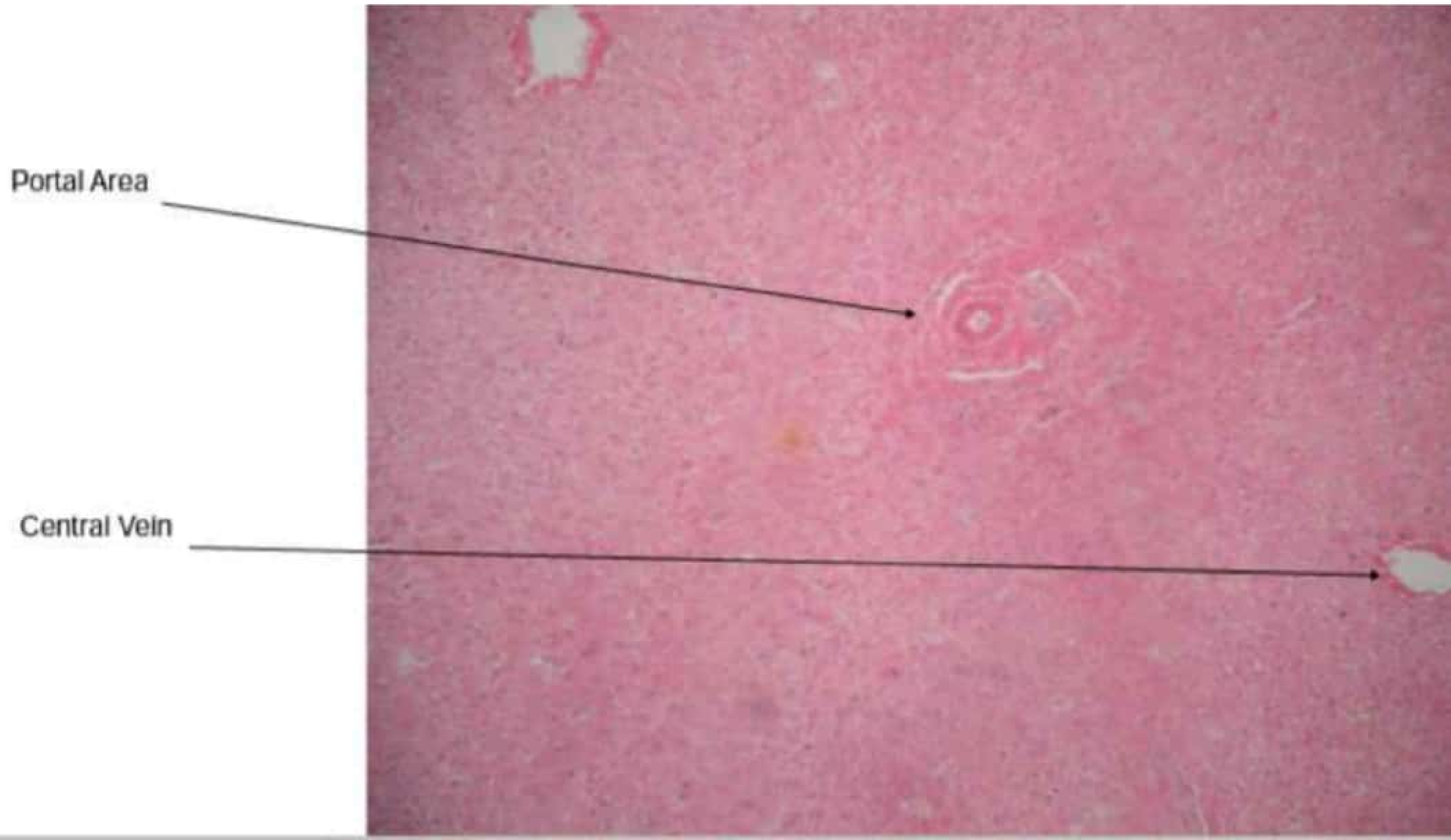

Mucosa
Muscularis Mucosa
Submucosa
Musculosa

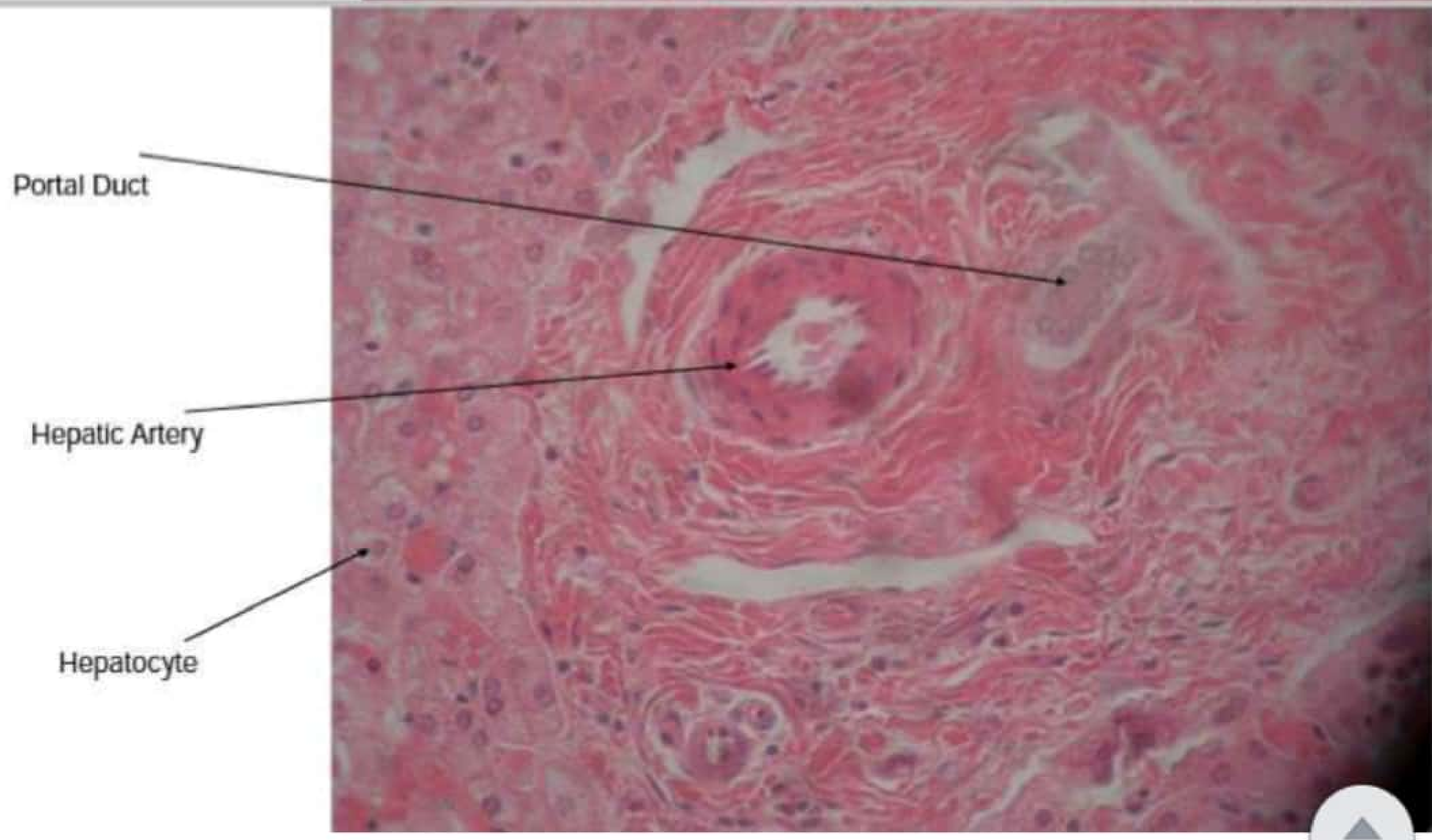

Musculosa
Outer Longtidunal
Inner Circular
Submucosa
Mucosa

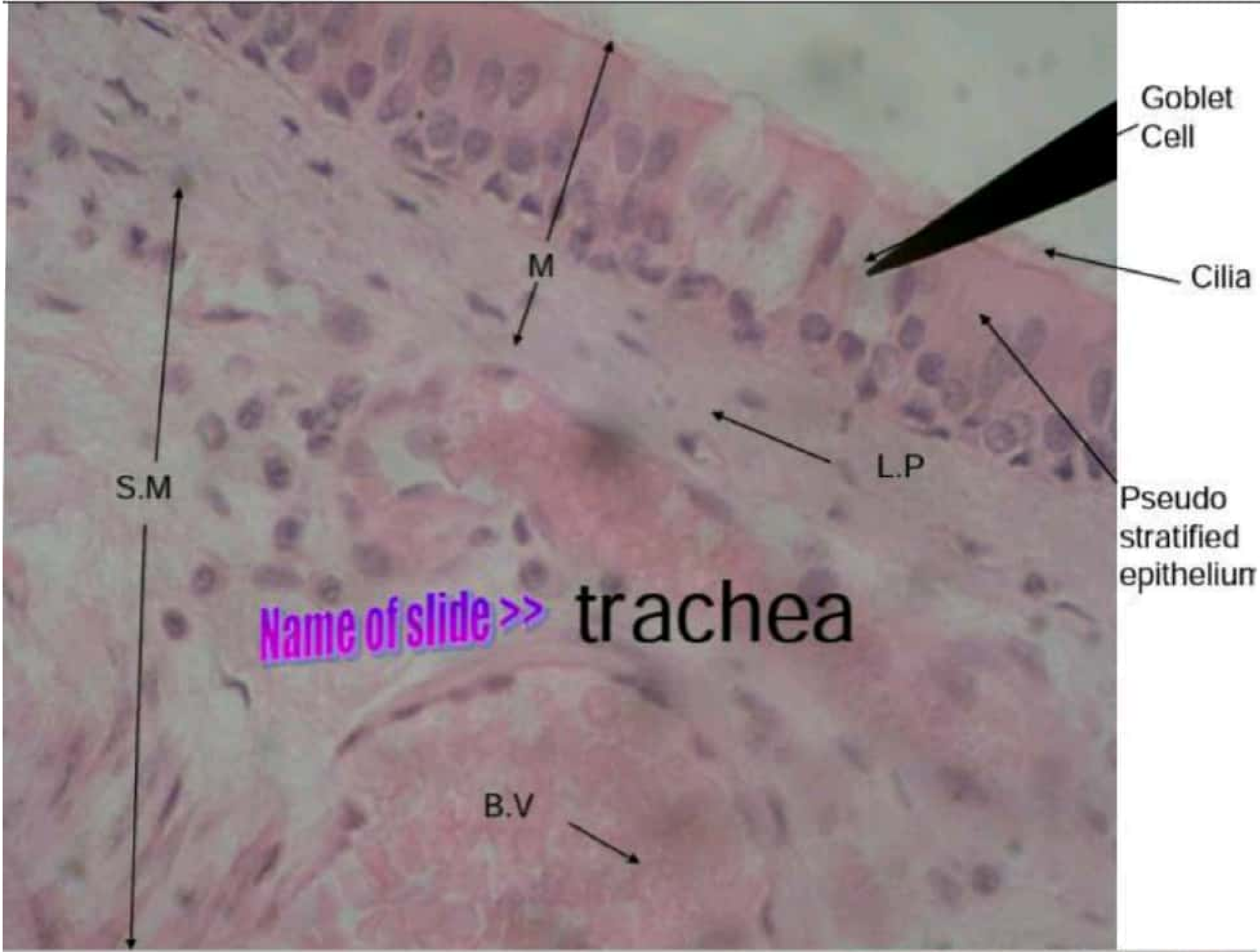

Exocrine Part
Endocrine Part
(Islet of Langerhans)

مهم

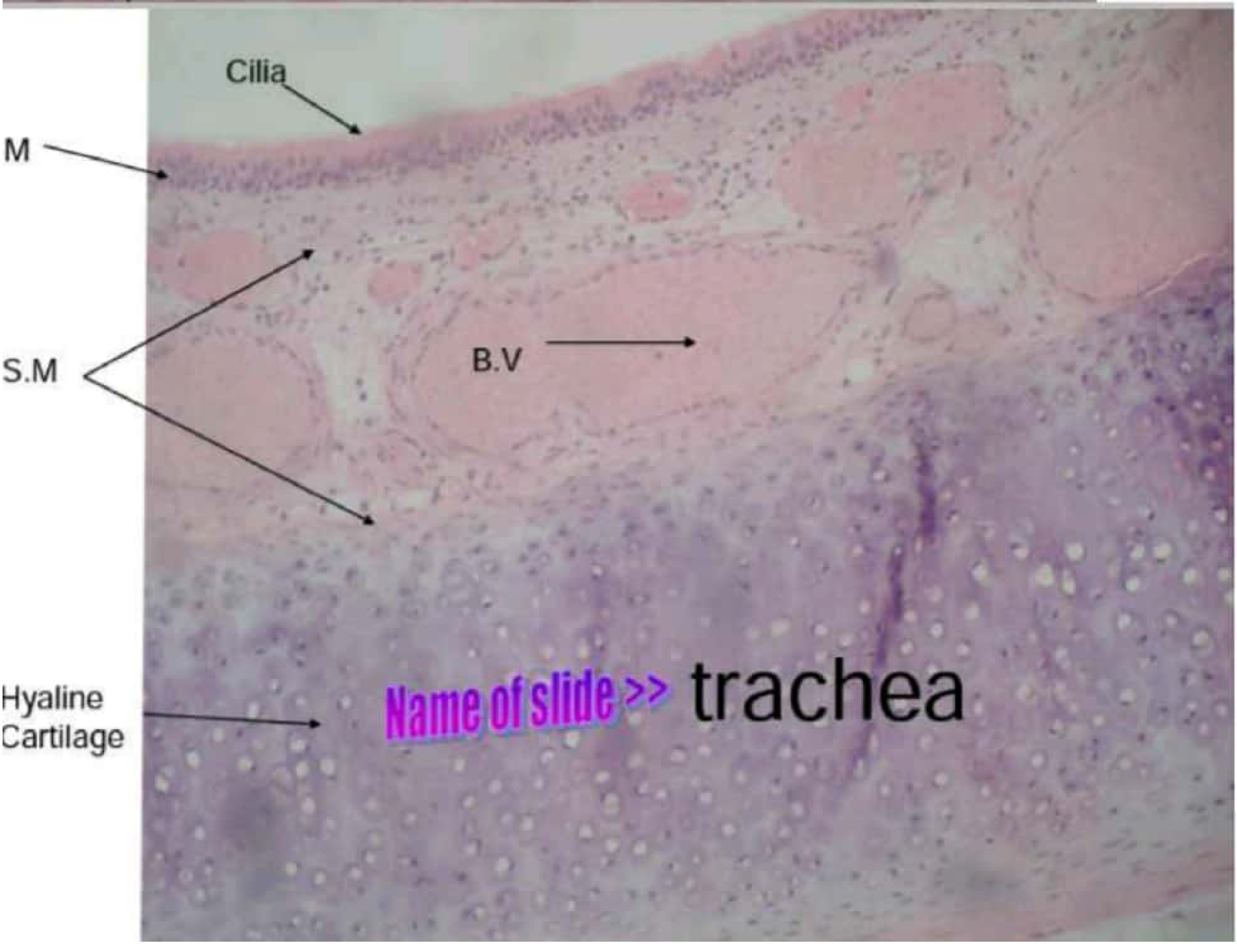

Intercalated Duct
Serous Acini


Portal Area
Central Vein

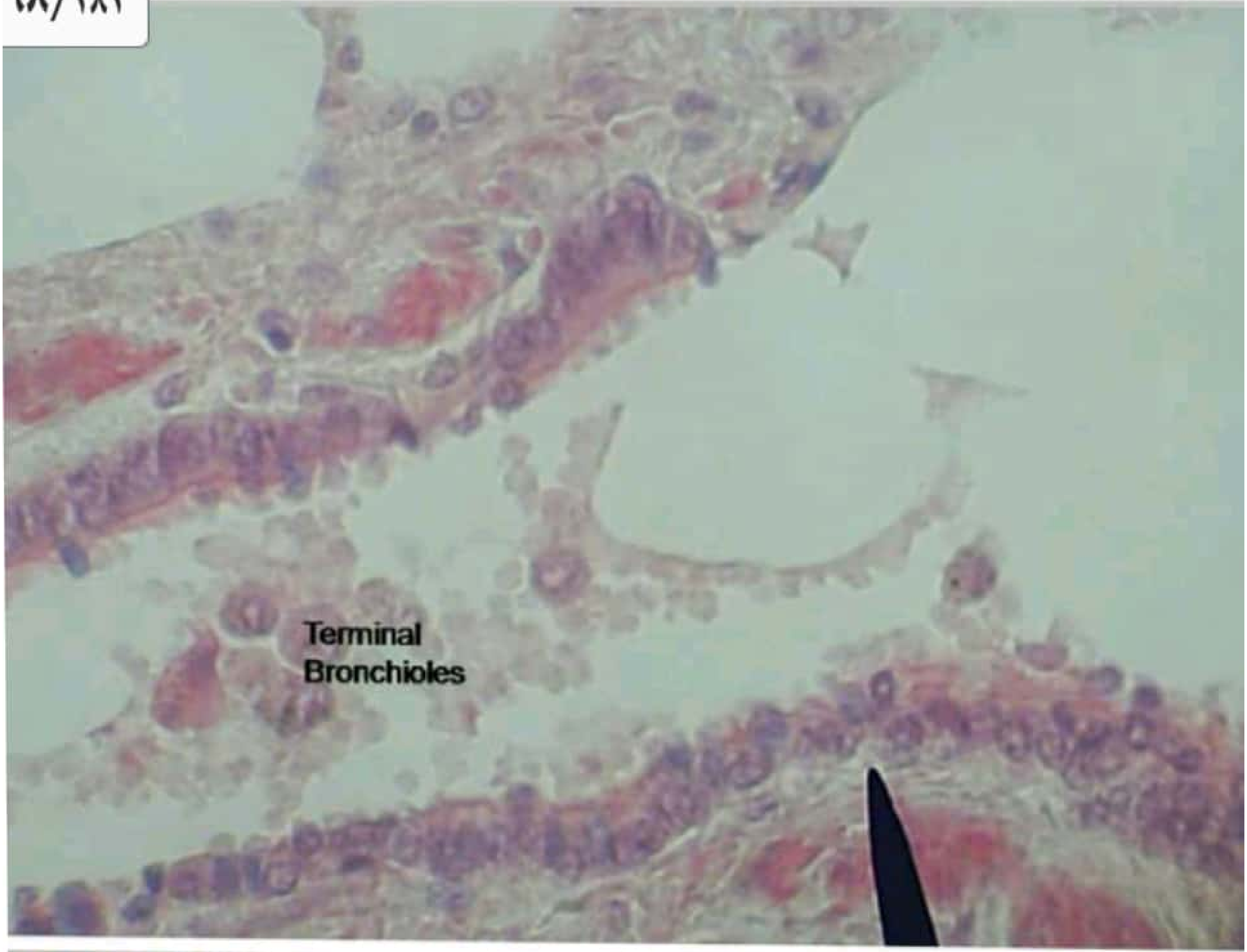

Portal Duct
Hepatic Artery
Hepatocyte

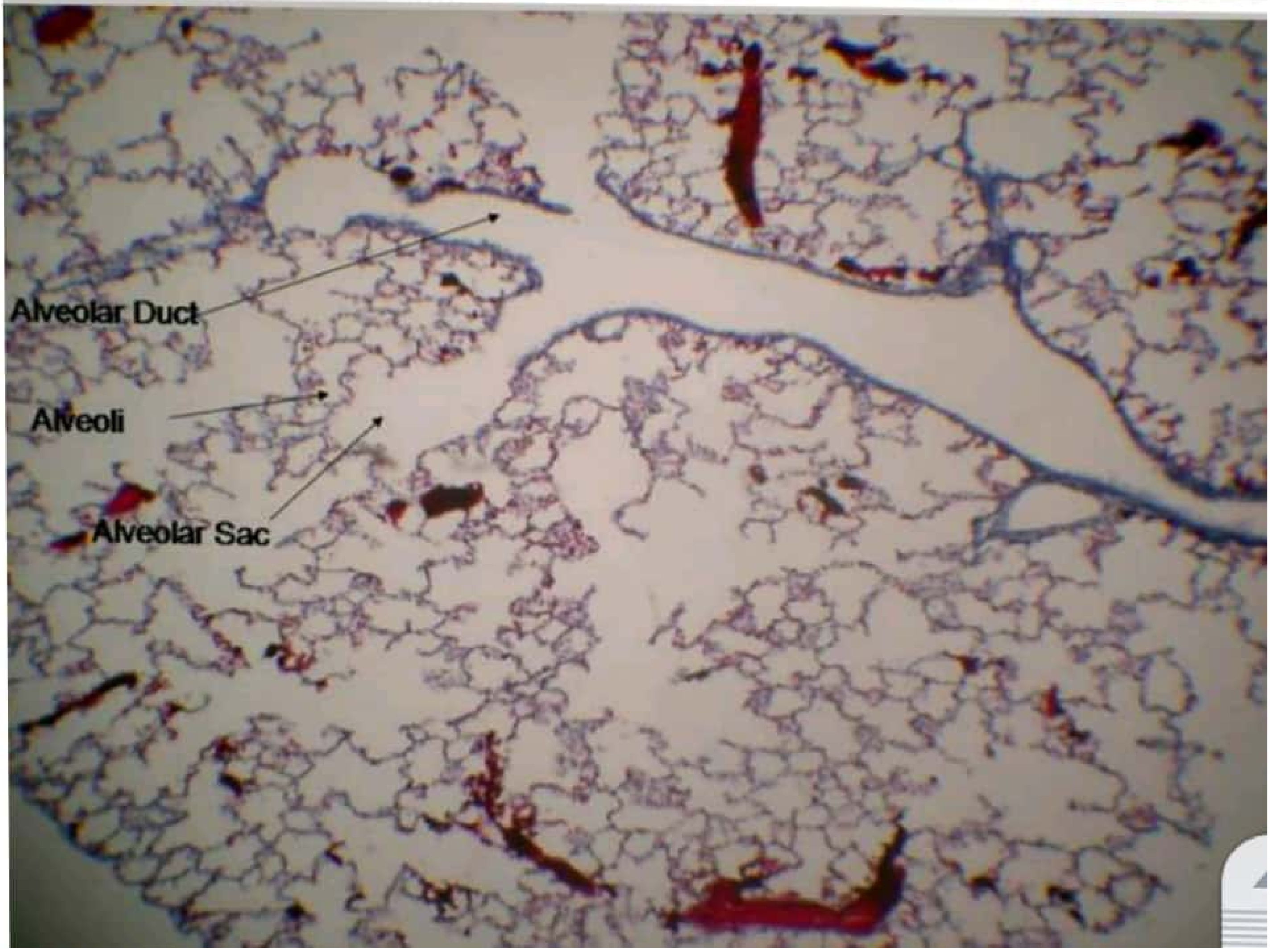

Goblet Cell
Cilia
M
L.P
S.M
Pseudo stratified epitheliun
B.V

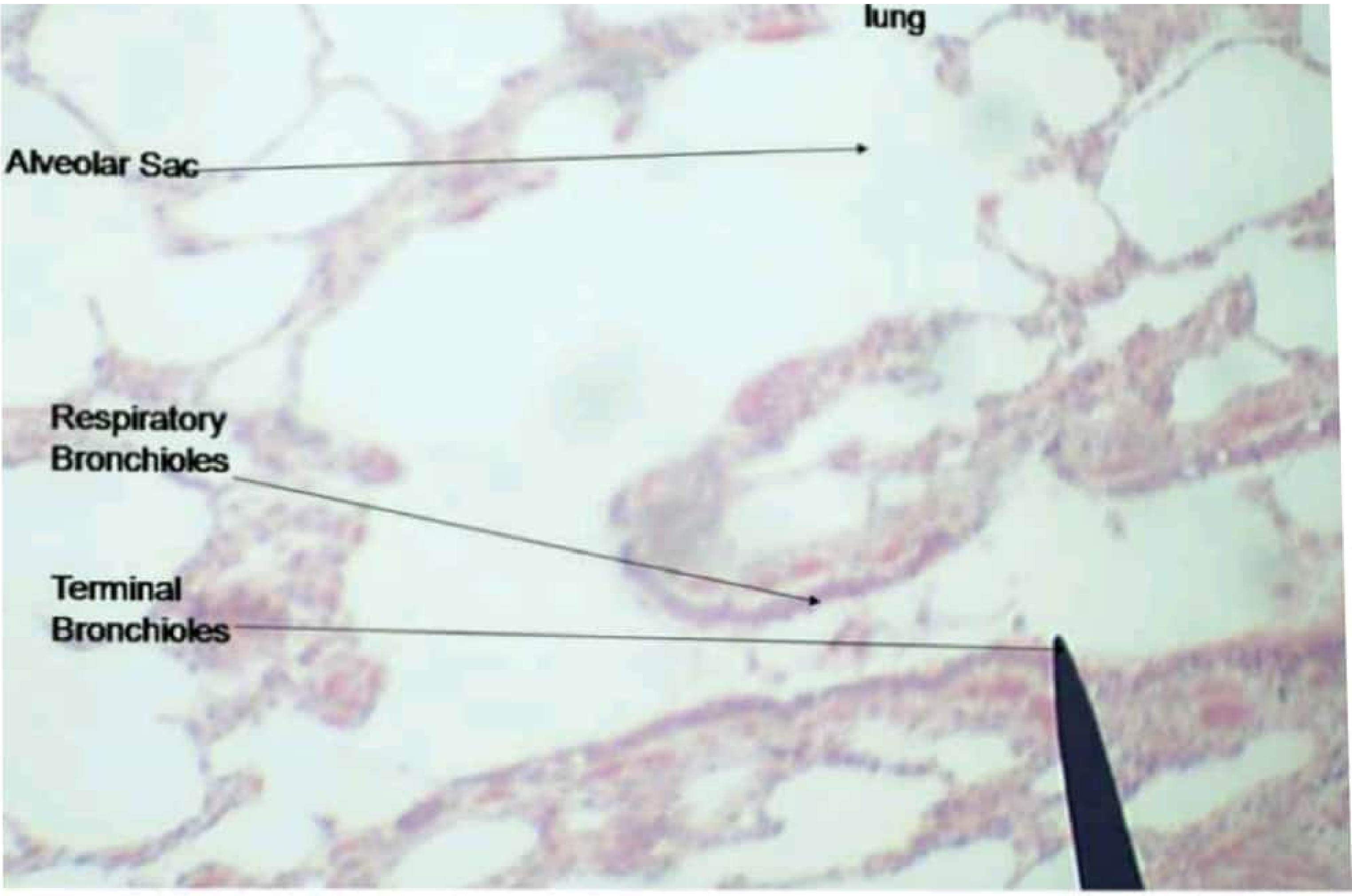
Name of slide >> trachea

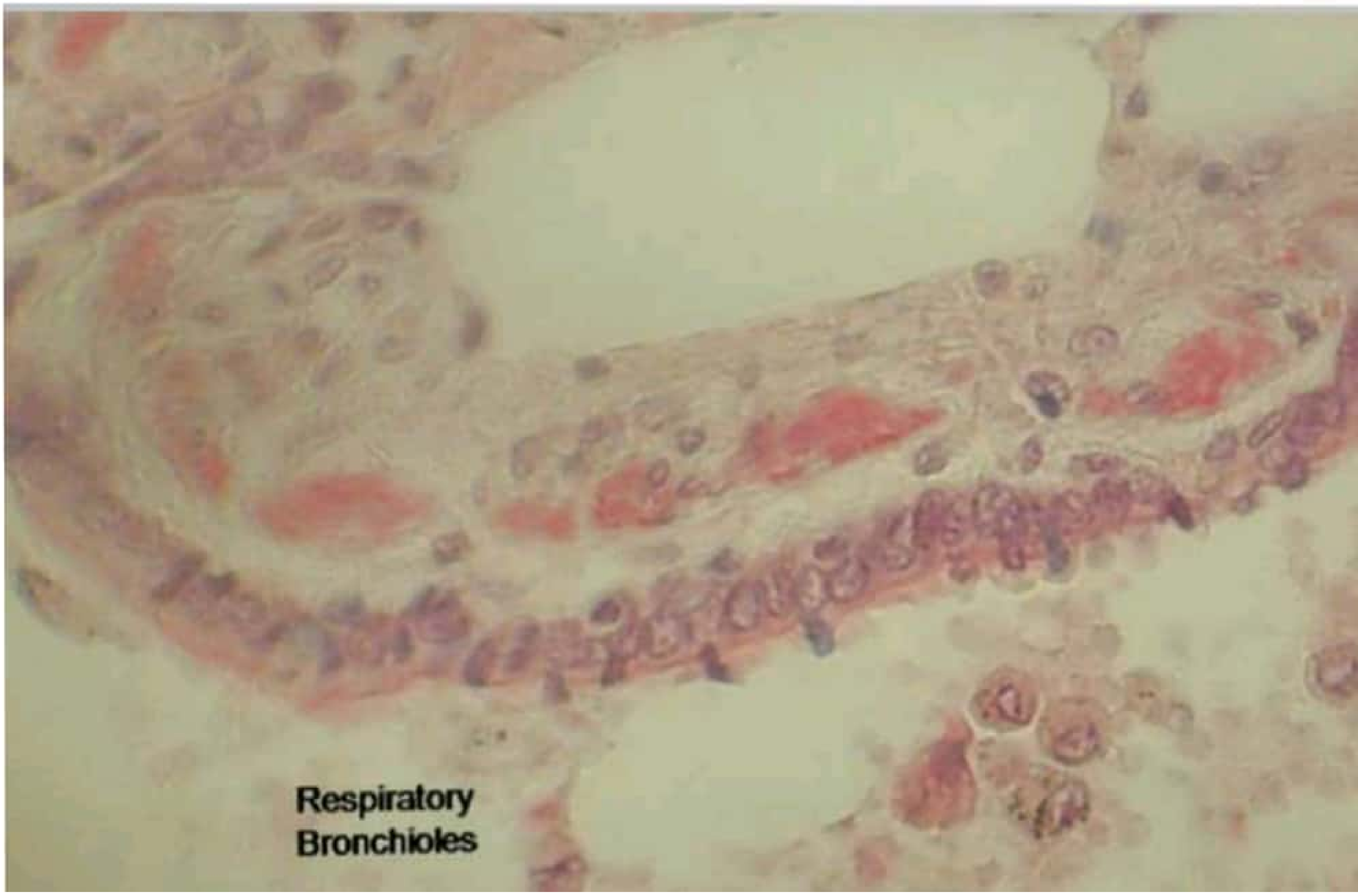

Cilia
M
S.M
B.V
Hyaline Cartilage

Name of slide >> trachea

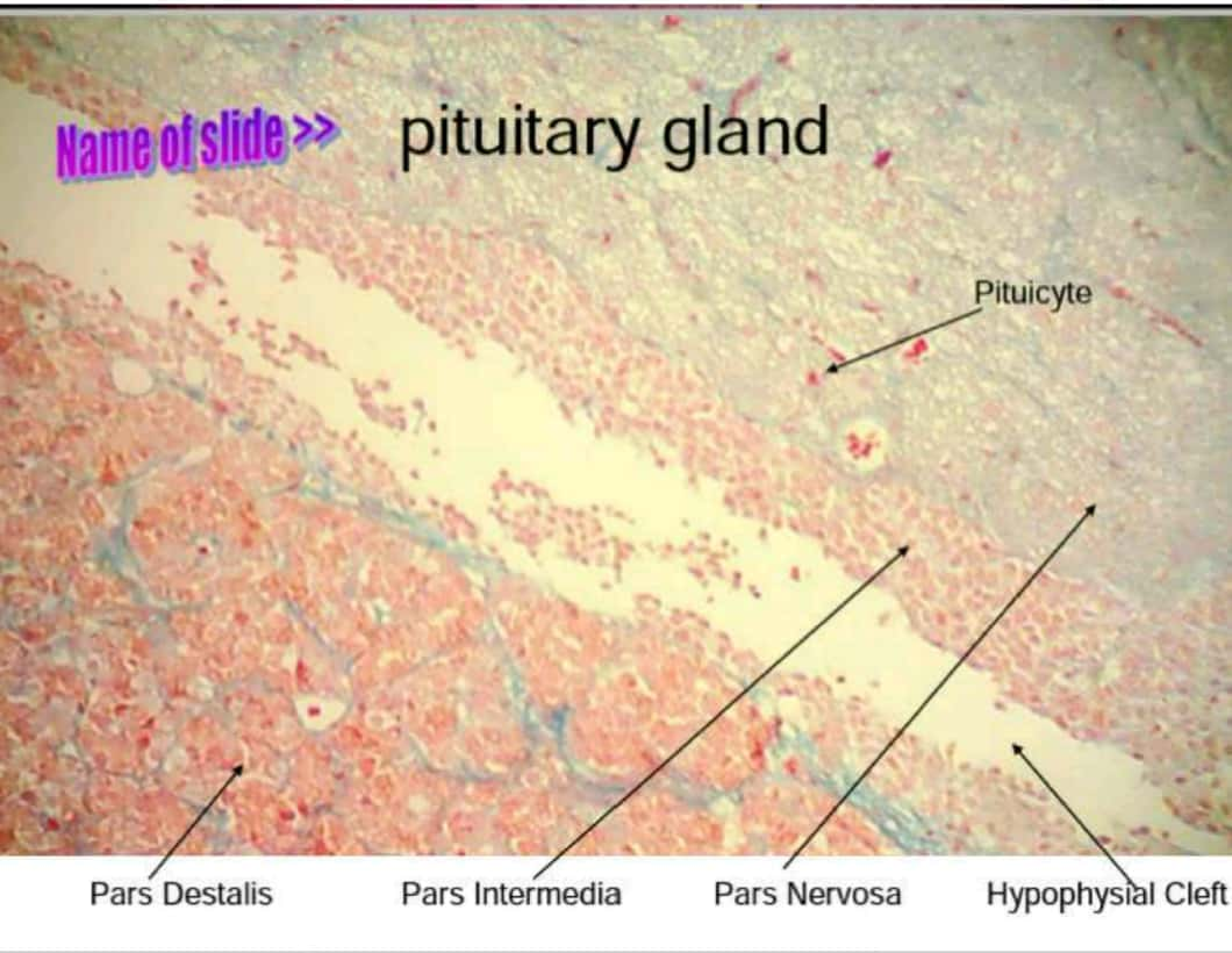

Terminal
Bronchioles


Alveolar Duct
Alveoli
Alveolar Sac


lung
Alveolar Sac
Respiratory Bronchioles
Terminal Bronchioles

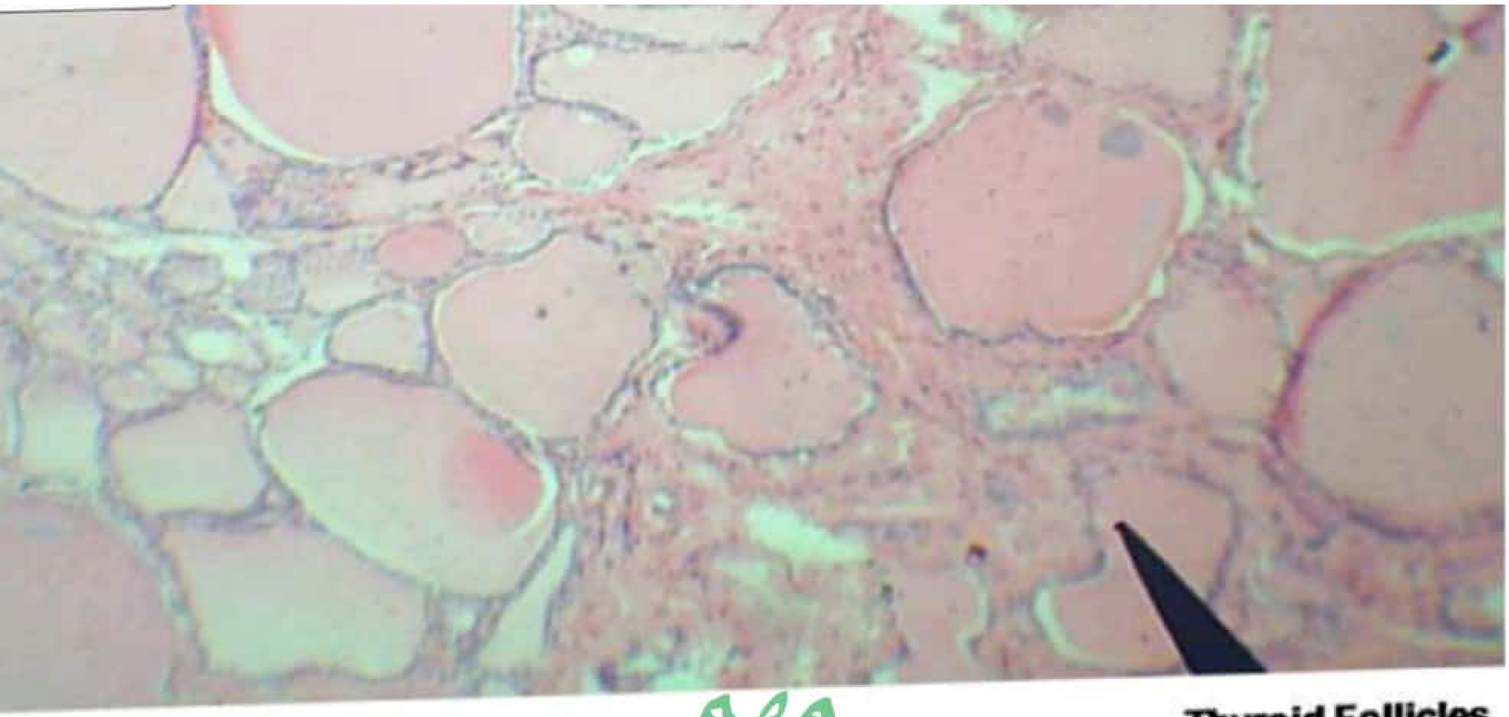

Respiratory Bronchioles

مهم



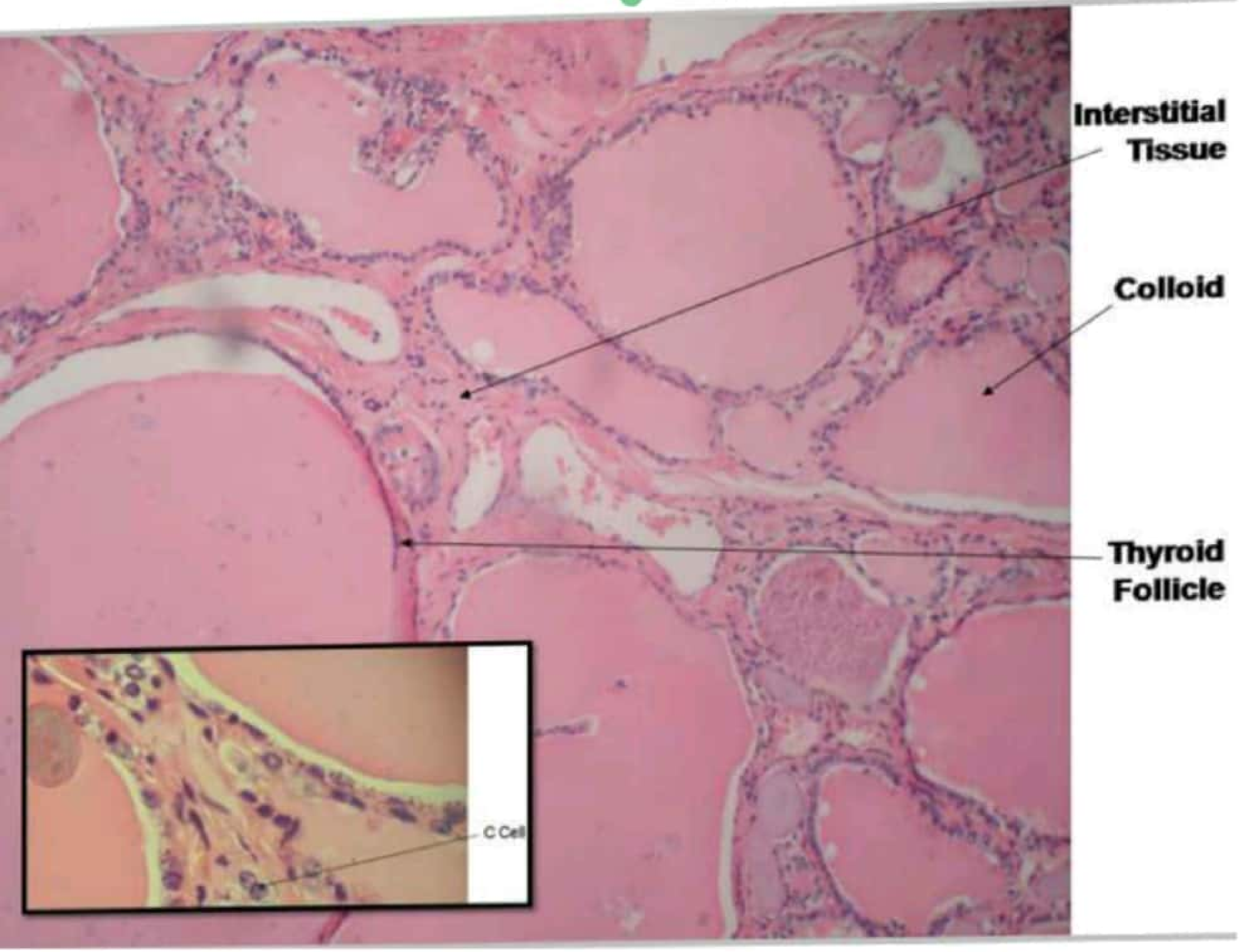
Name of slide >> pituitary gland

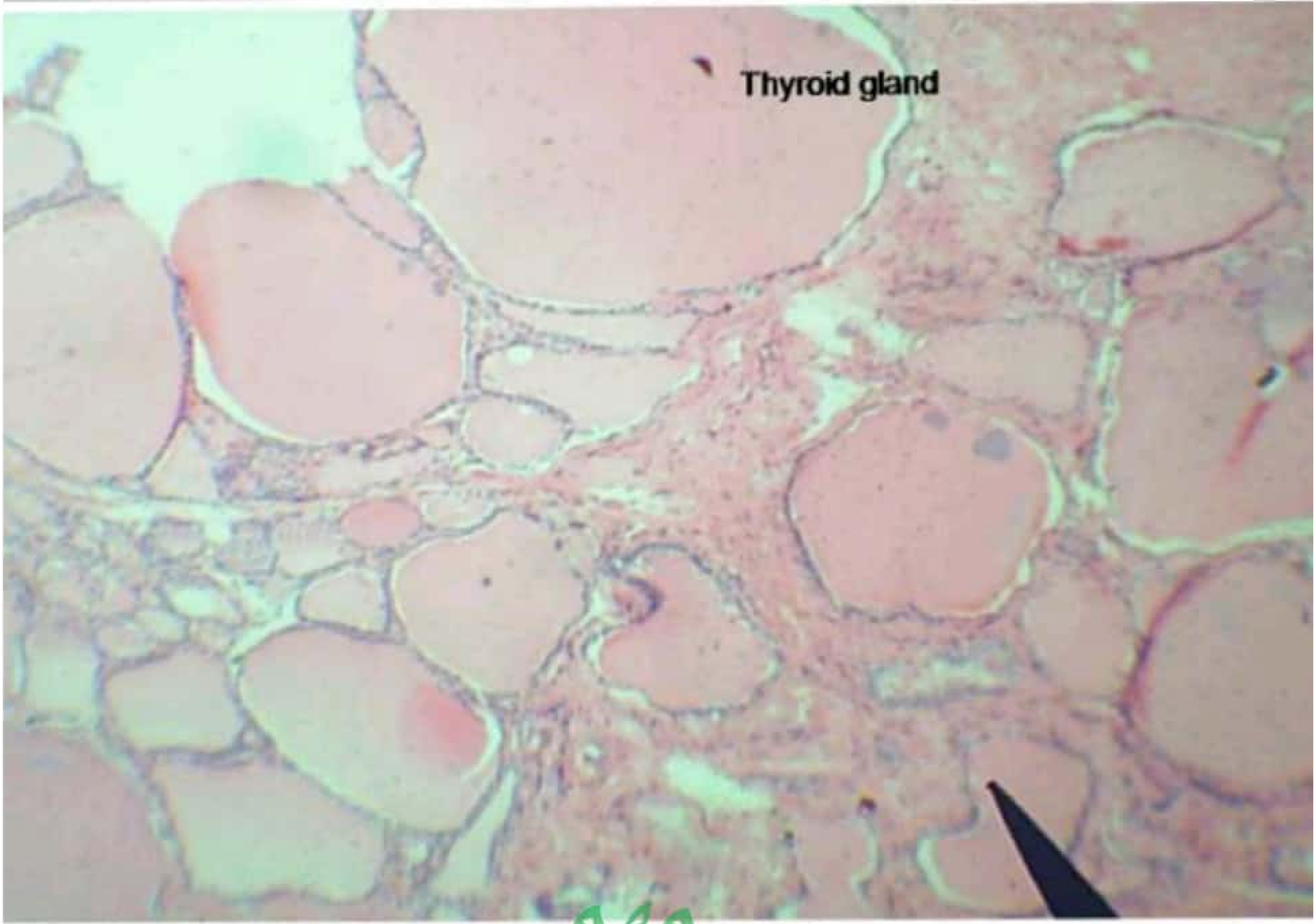
Pituicyte
Pars Destalis
Pars Intermedia
Pars Nervosa
Hypophysial Cleft



مهم

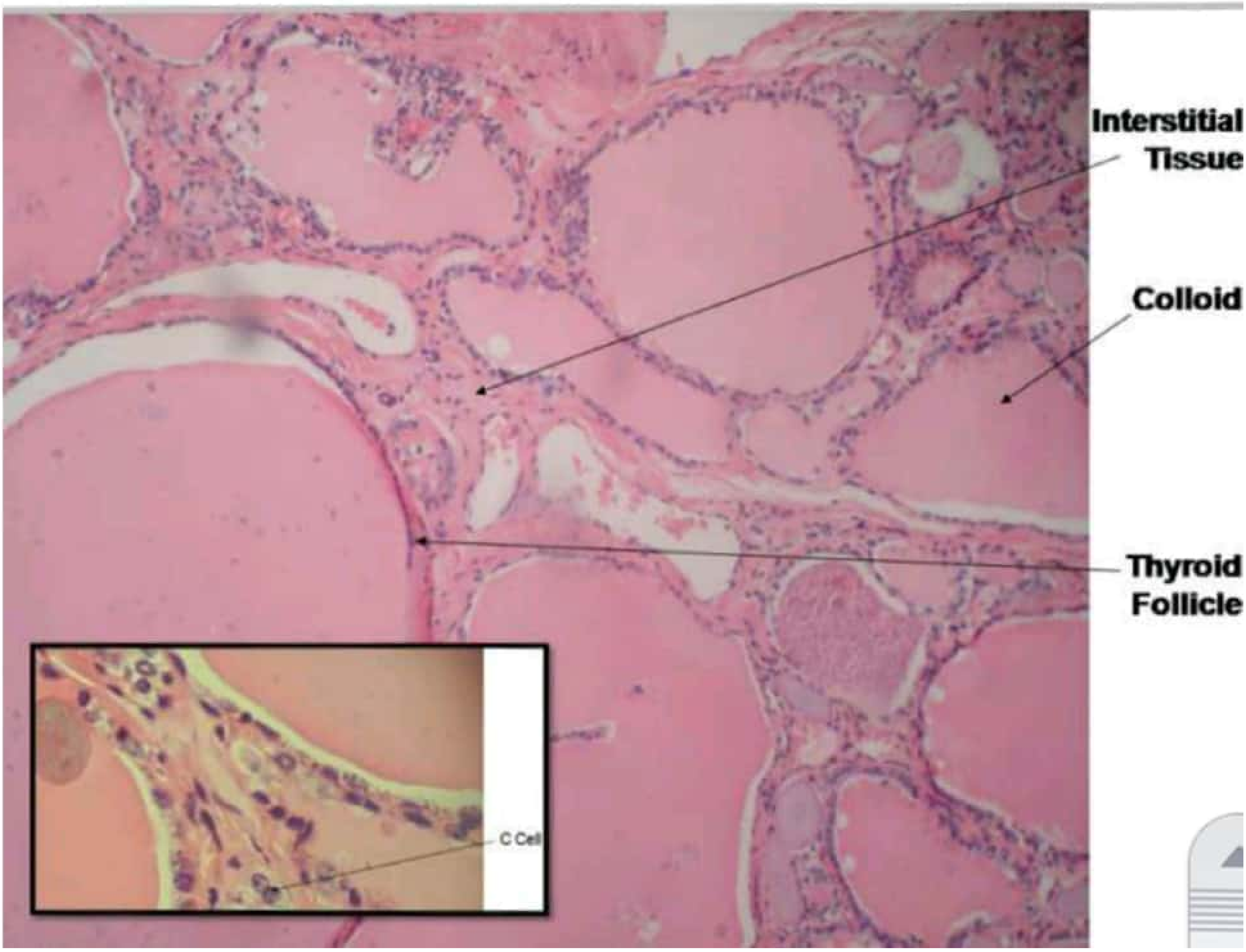
Thyroid Follicles

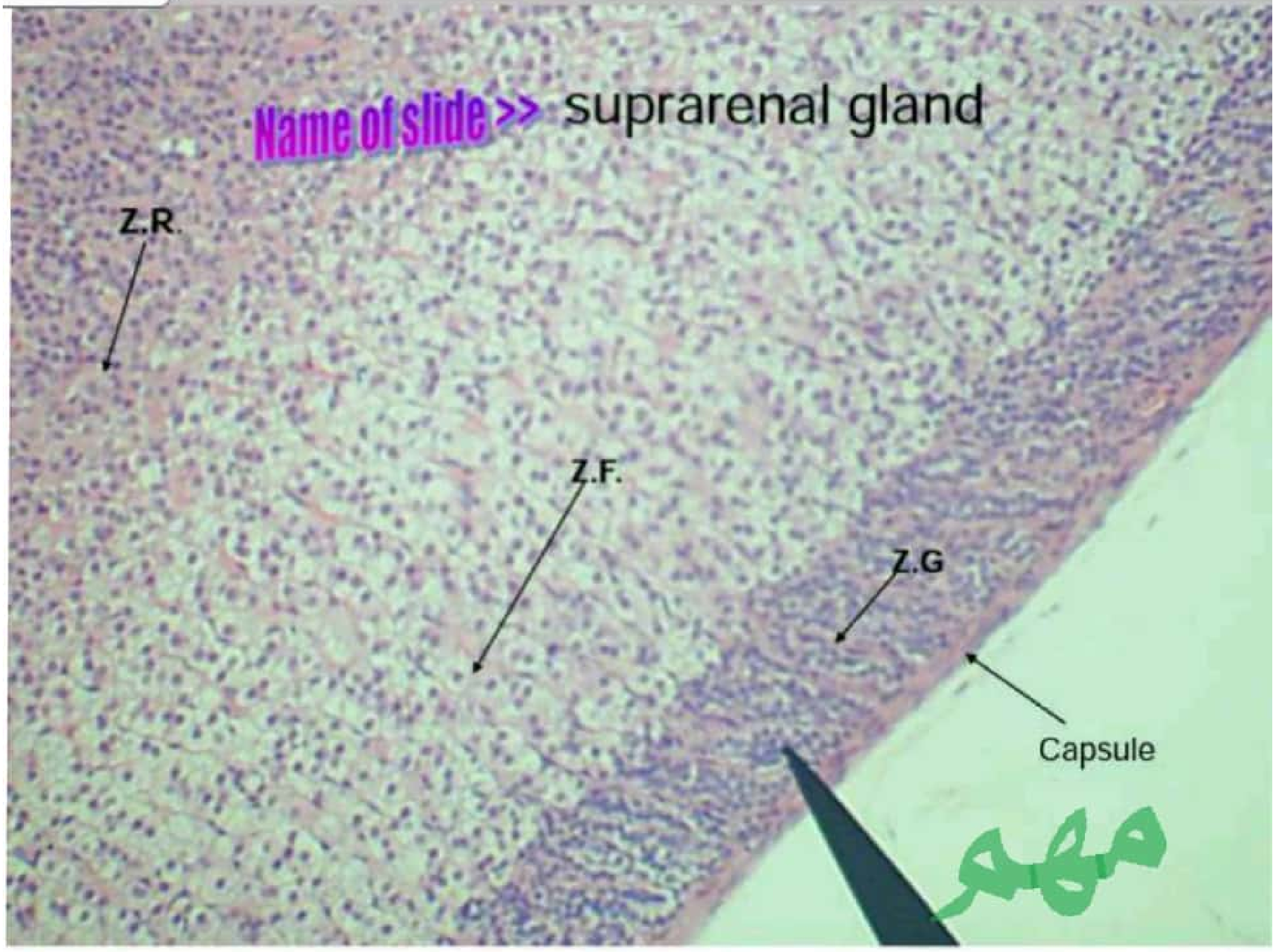

Interstitial Tissue
Colloid
Thyroid Follicle
C Cell


Thyroid gland

مهم

Thyroid Follicles

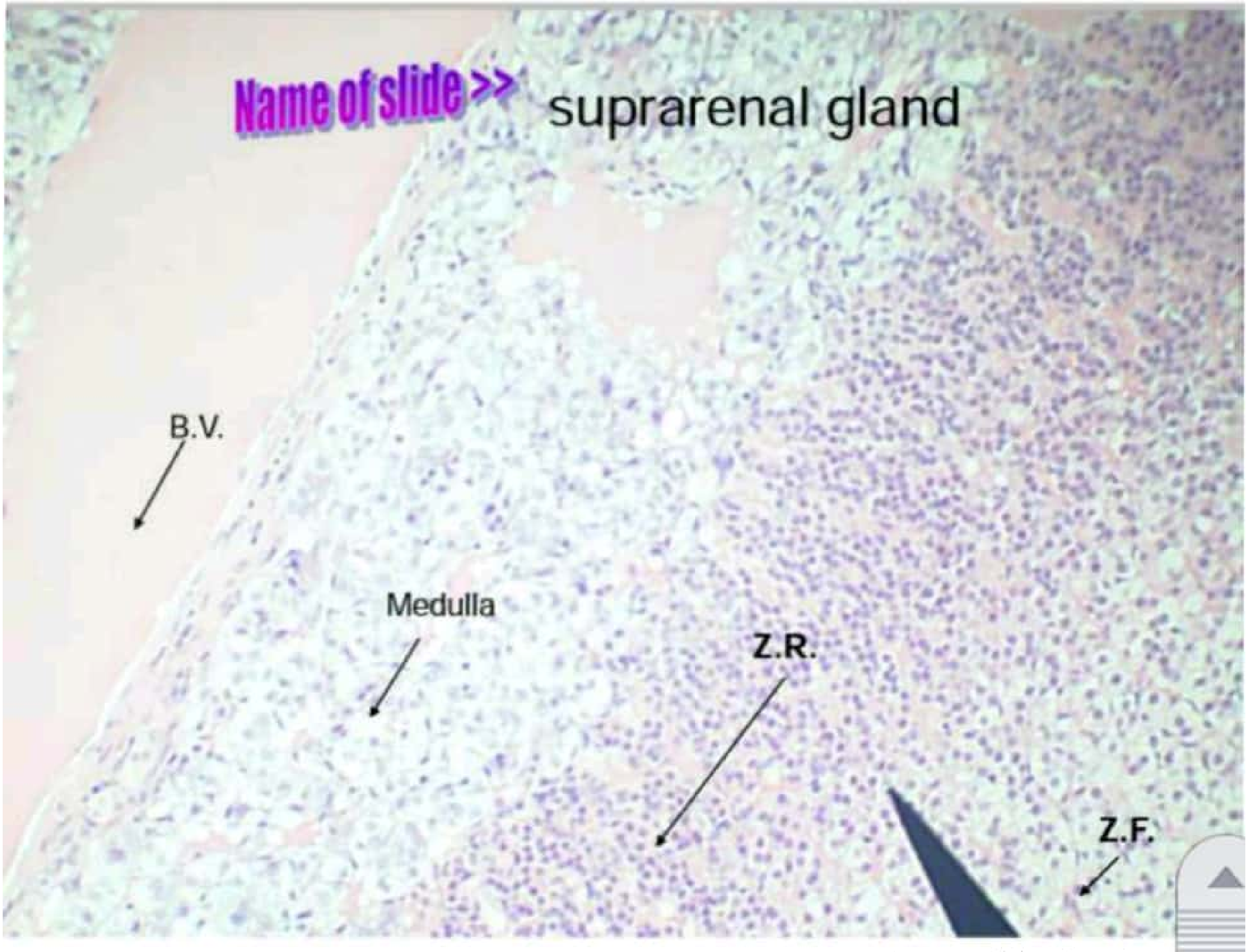

Interstitial Tissue
Colloid
Thyroid Follicle
C Cell



Name of slide >> suprarenal gland

Z.R.
Z.F.
Z.G
Capsule

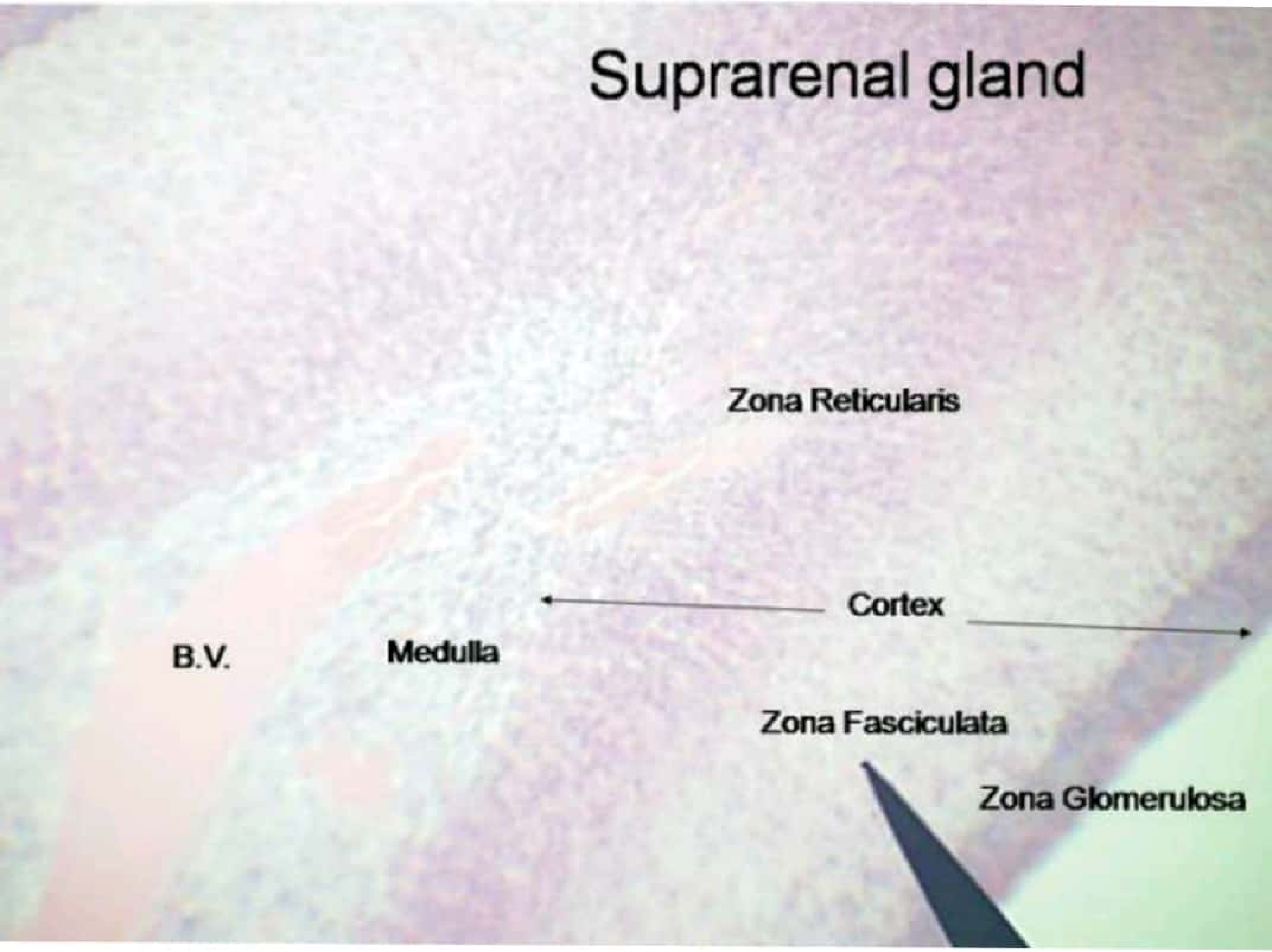
مهم



Name of slide >> suprarenal gland

B.V.
Medulla
Z.R.
Z.F.

مهم



Suprarenal gland

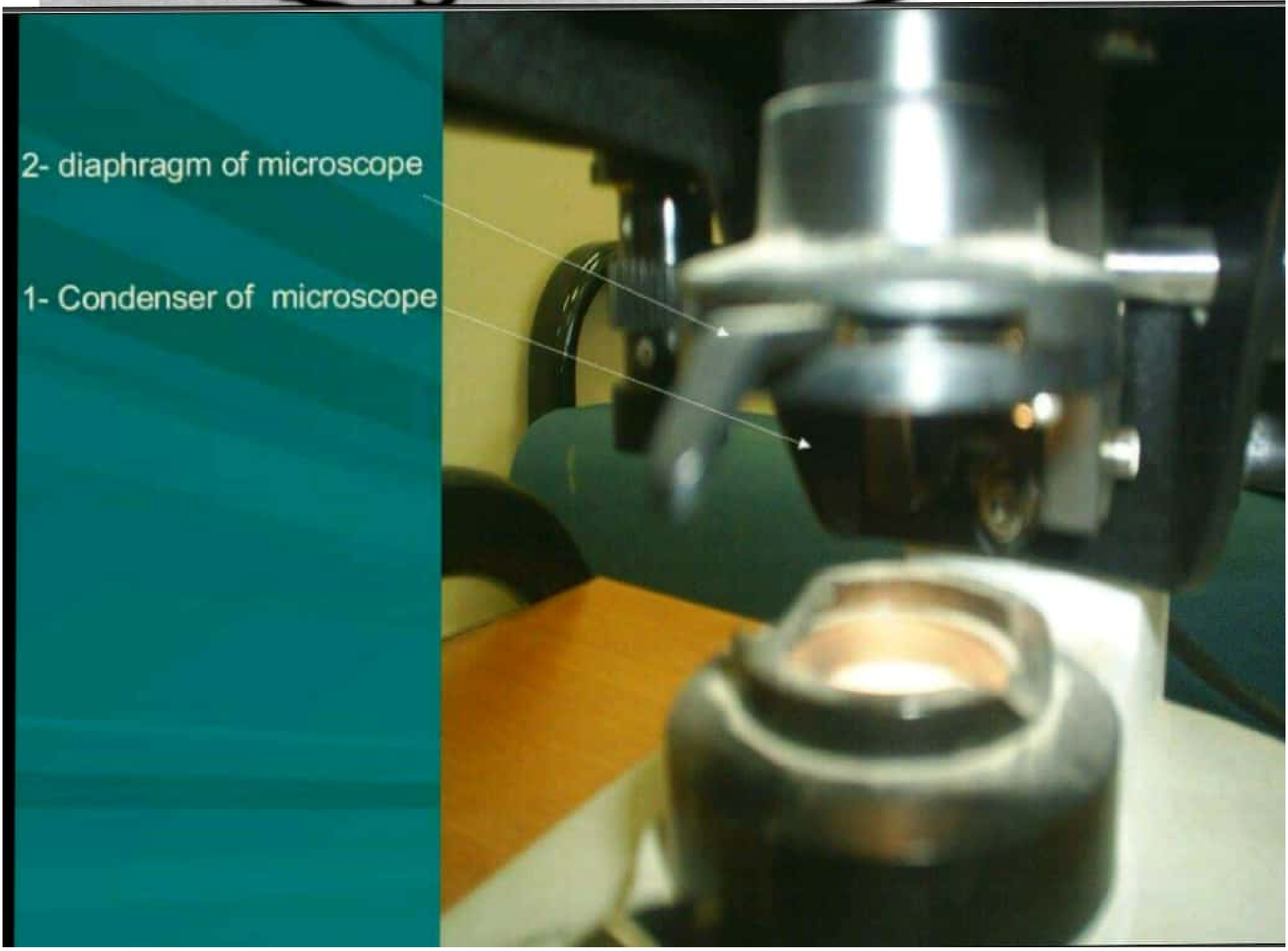
Zona Reticularis
Cortex
B.V.
Medulla
Zona Fasciculata
Zona Glomerulosa

أجزاء الميكروسكوب

Y.M.SH

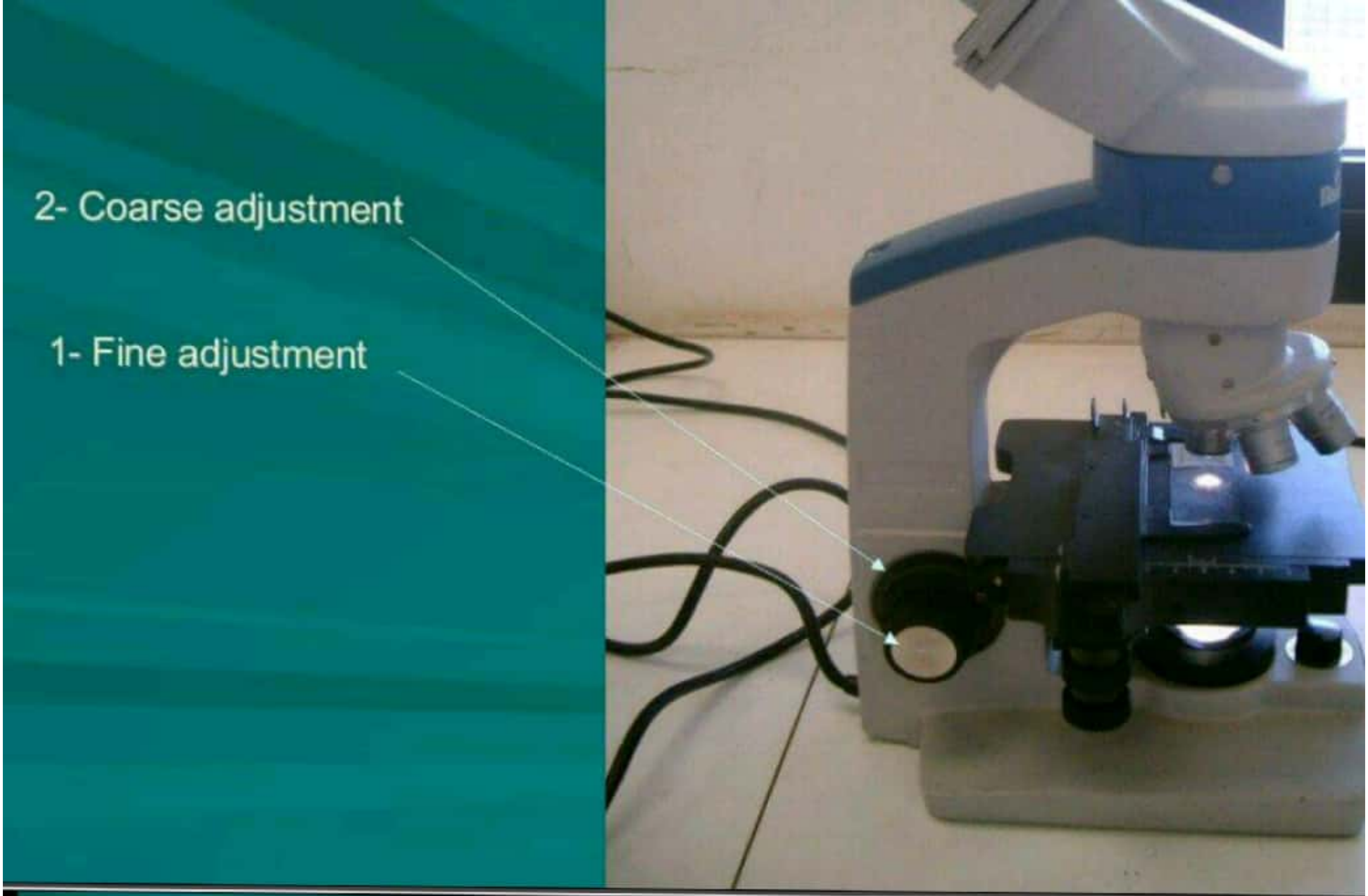
Parts of microscope

1- Base (Foot)
2- Arm
3- stage
4- Objeclive Lenses
5- nose-piece →
6- Eye-piece
7- Fine adjustment
8- Coarse adjustment
9- Condenser →
10- slide clip
11- Light swich



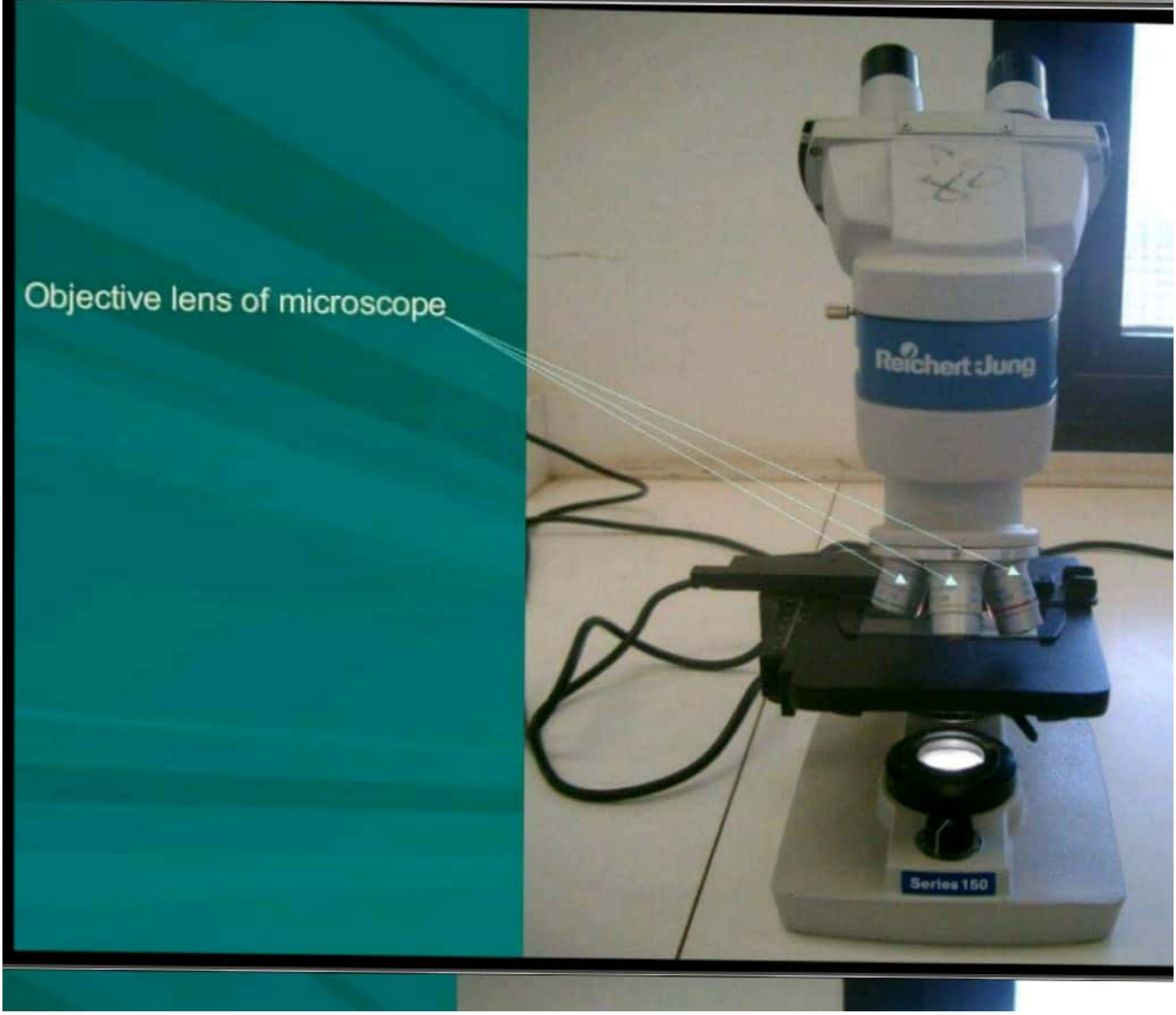
2- diaphragm of microscope

1- Condenser of microscope



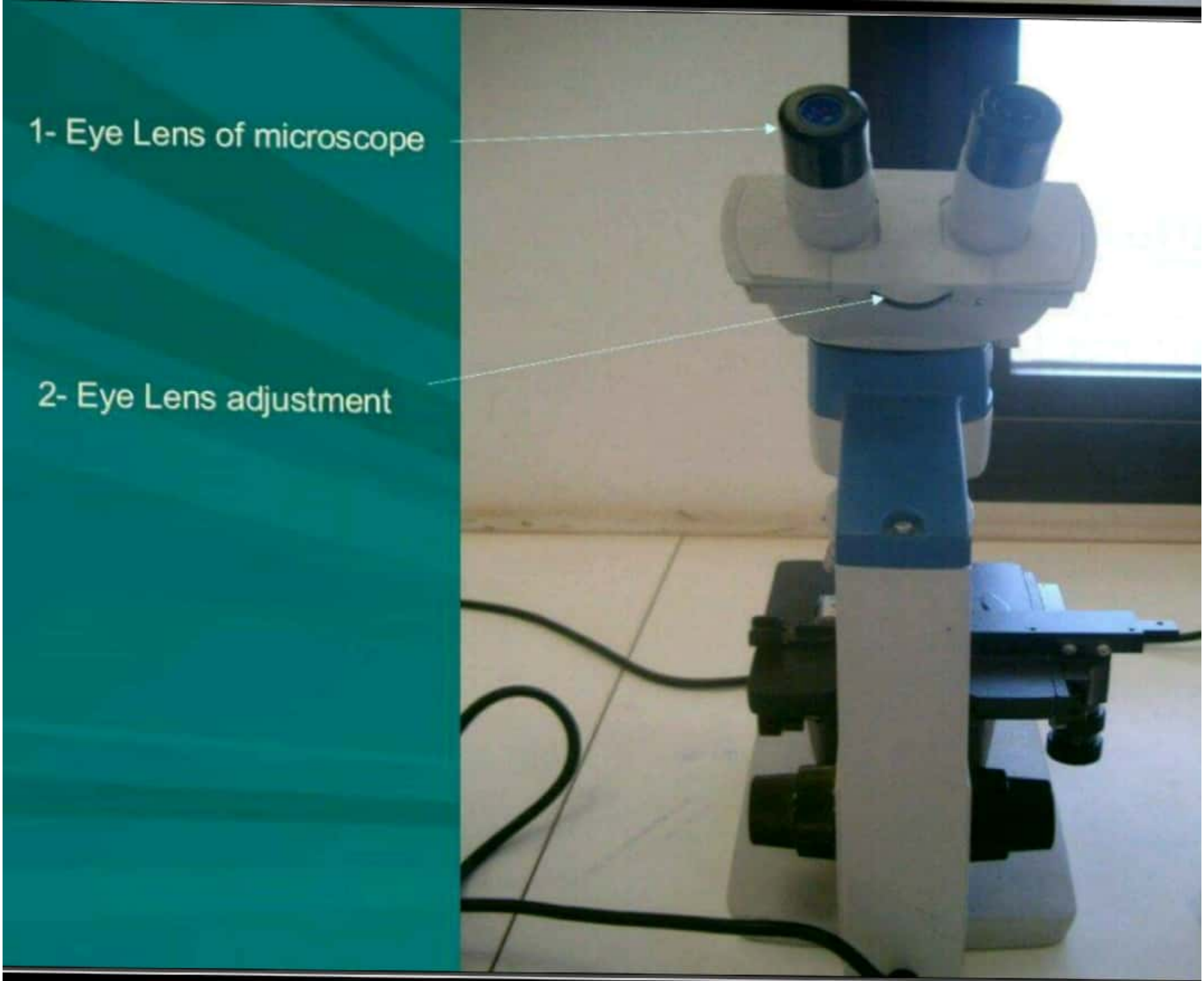
2- Coarse adjustment

1- Fine adjustment



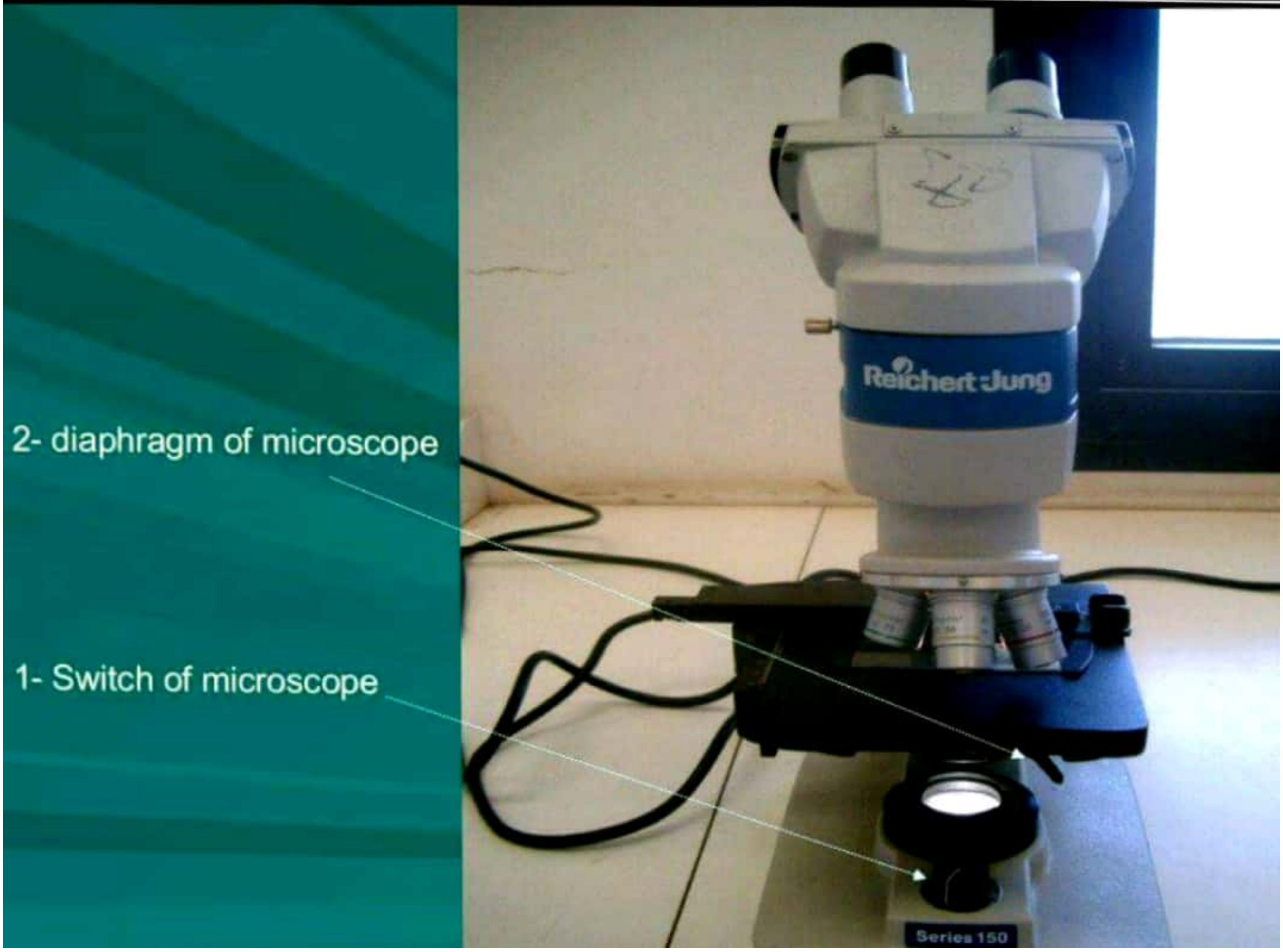
Objective lens of microscope

Reichert-Jung
Series 150



1- Eye Lens of microscope

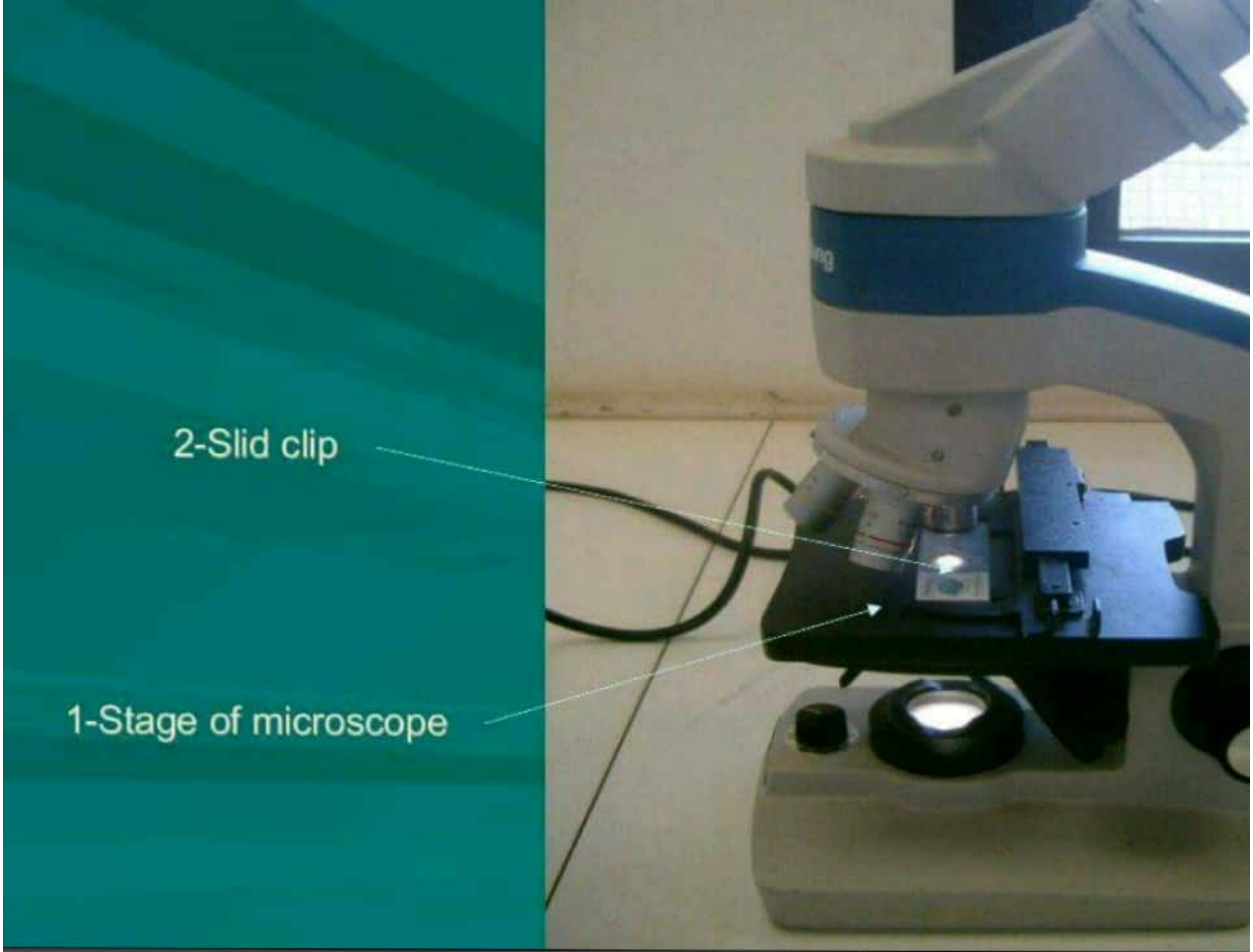
2- Eye Lens adjustment



Reichert-Jung
Series 150

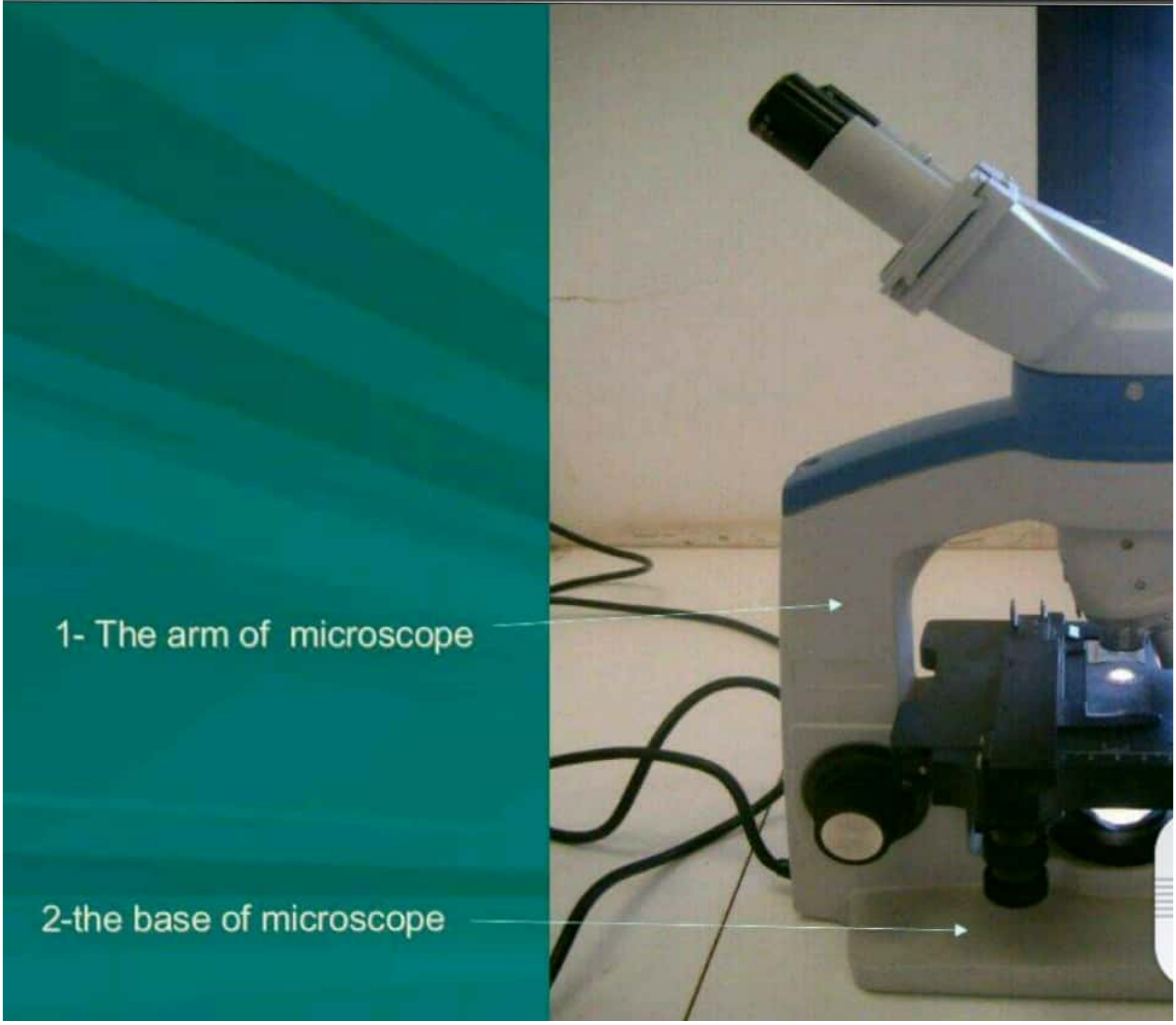
2- diaphragm of microscope

1- Switch of microscope



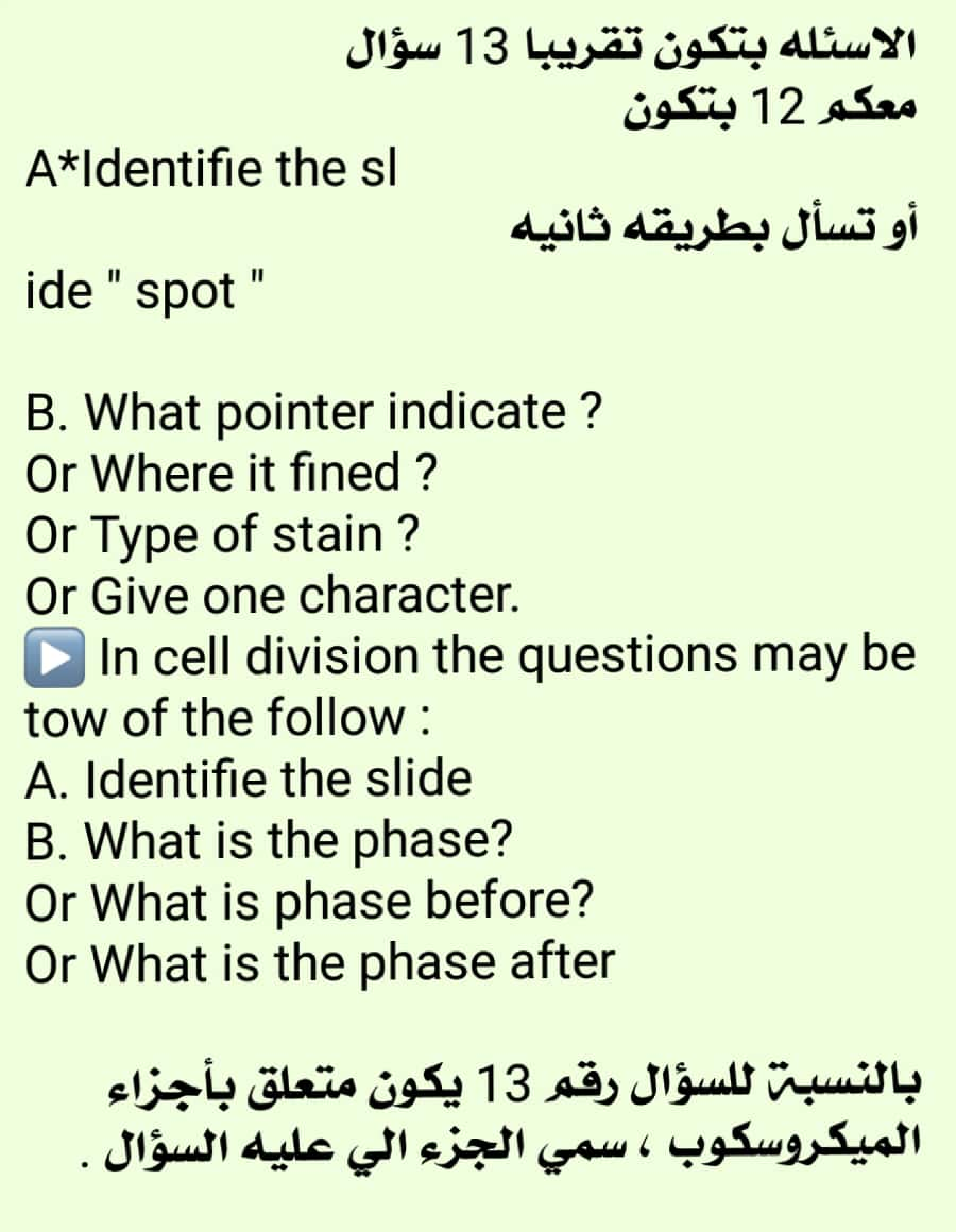
2-Slid clip

1-Stage of microscope



1- The arm of microscope

2-the base of microscope



الاسئله بتكون تقريبا 13 سؤال
معكم 12 بتكون

A*Identifie the sl

أو تسأل بطريقه ثانيه

ide " spot "

B. What pointer indicate ?
Or Where it fined ?
Or Type of stain ?
Or Give one character.

▶️ In cell division the questions may be tow of the follow :

A. Identifie the slide
B. What is the phase?
Or What is phase before?
Or What is the phase after

بالنسبة للسؤال رقم 13 يكون متعلق بأجزاء الميكروسكوب ، سمي الجزء الي عليه السؤال .

1 mitosis
2 Areolar
3 smooth muscle
4 Skeletal muscle (L.S)
5 ″ ″ (T.S)
6 cardiac ″
7 Bone (compact)
8 ″ (spongy)
9 Elastic cartilage
10 fibro cartilage
11 Sciatic nerve
12 Sympathetic g.
13 Spinal g.
14 Blood
15 lymph node
16 Thymus
17 spleen
18 Reticular fiber
19 Esophagus
20 Tongue circumvallate P.
21 ″ filliform P.
22 fundus
23 Pylorus
24 Duodenum
25 illeum
26 Tenia coli (colon)
27 Pancreas
28 Gall bladder
29 liver
30 pituitary g.
31 Adrenal
32 Thyroid
33 Trachea
34 lung
35 urinary bladder
36 Kidney
37 Thin skin
38 Thick ″
39 Missner's corpuscle
40 ovary
41 vagina
42 Testis

المقررة ل 34

أسماء الslides الي نزلت في معمل المراجعة بقلم د نورا الي عليهادائره معناه بتنزل القديمه ماعادهابتنزل الجديده

صور من أطلس ديفيوري

تساعد في التعرف على السلايد بشكل أفضل

Y.M.SH

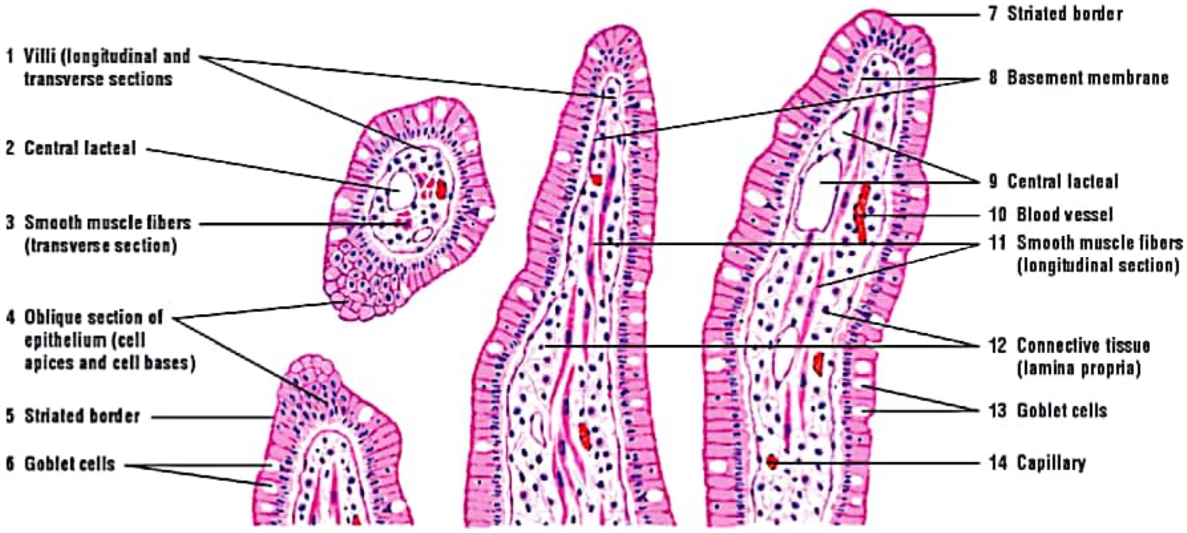

1 Villi (longitudinal and transverse sections
2 Central lacteal
3 Smooth muscle fibers (transverse section)
4 Oblique section of epithelium (cell apices and cell bases)
5 Striated border
6 Goblet cells
7 Striated border
8 Basement membrane
9 Central lacteal
10 Blood vessel
11 Smooth muscle fibers (longitudinal section)
12 Connective tissue (lamina propria)
13 Goblet cells
14 Capillary

FIGURE 2.5 ■ Simple columnar epithelium on villi in small intestine: cells with striated borders (microvilli) and goblet cells. Stain: hematoxylin and eosin. Medium magnification.

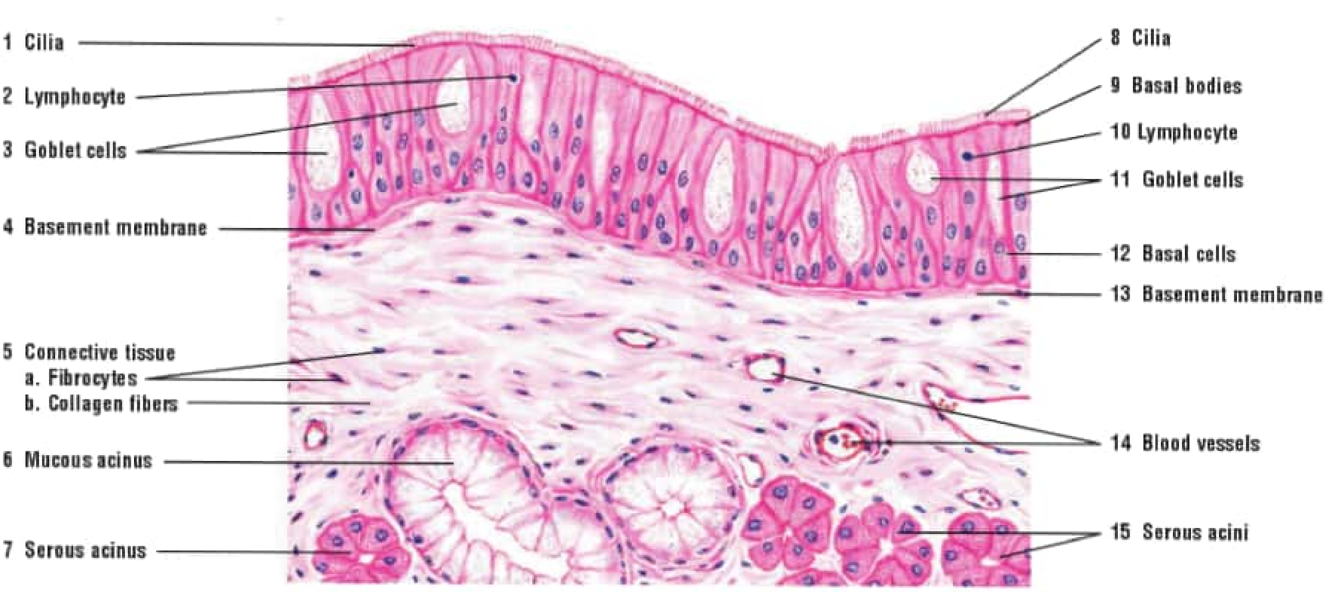

1 Cilia
2 Lymphocyte
3 Goblet cells
4 Basement membrane
5 Connective tissue
a. Fibrocytes
b. Collagen fibers
6 Mucous acinus
7 Serous acinus
8 Cilia
9 Basal bodies
10 Lymphocyte
11 Goblet cells
12 Basal cells
13 Basement membrane
14 Blood vessels
15 Serous acini

FIGURE 2.6 ■ Pseudostratified columnar ciliated epithelium: respiratory passages–trachea. Stain: hematoxylin and eosin. High magnification.

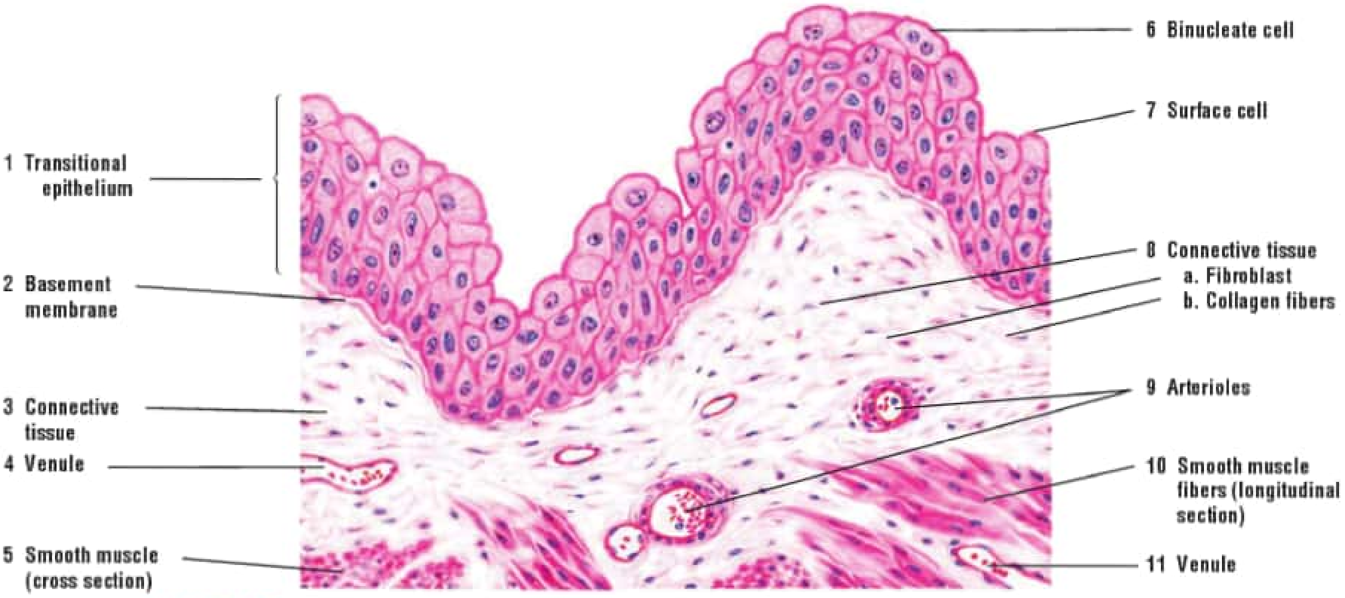

1 Transitional epithelium
2 Basement membrane
3 Connective tissue
4 Venule
5 Smooth muscle (cross section)
6 Binucleate cell
7 Surface cell
8 Connective tissue
a. Fibroblast
b. Collagen fibers
9 Arterioles
10 Smooth muscle fibers (longitudinal section)
11 Venule

FIGURE 2.7 ■ Transitional epithelium: bladder (unstretched or relaxed). Stain: hematoxylin and eosin. High magnification.

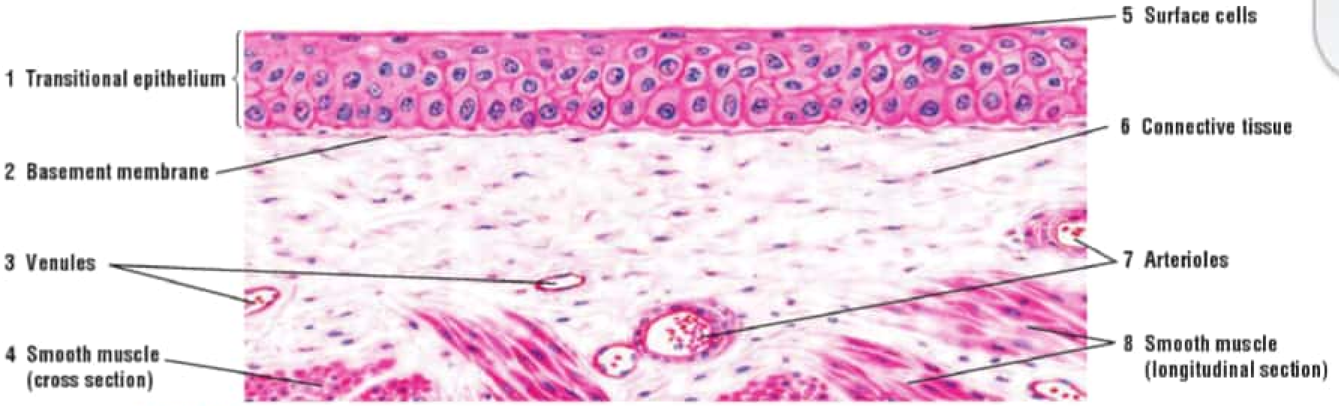

1 Transitional epithelium
2 Basement membrane
3 Venules
4 Smooth muscle (cross section)
5 Surface cells
6 Connective tissue
7 Arterioles
8 Smooth muscle (longitudinal section)

FIGURE 2.8 ■ Transitional epithelium: bladder (stretched). Stain: hematoxylin and eosin. High magnification.

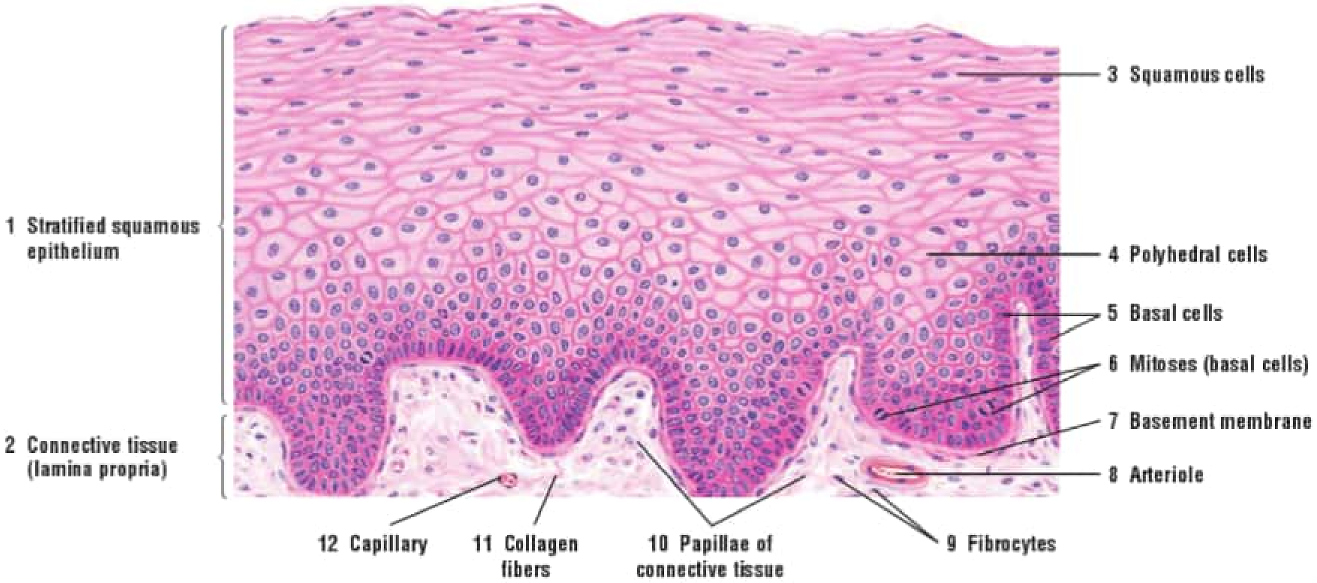

1 Stratified squamous epithelium
2 Connective tissue (lamina propria)
3 Squamous cells
4 Polyhedral cells
5 Basal cells
6 Mitoses (basal cells)
7 Basement membrane
8 Arteriole
9 Fibrocytes
10 Papillae of connective tissue
11 Collagen fibers
12 Capillary

FIGURE 2.9 ■ Stratified squamous nonkeratinized epithelium: esophagus. Stain: hematoxylin and eosin. Medium magnification.

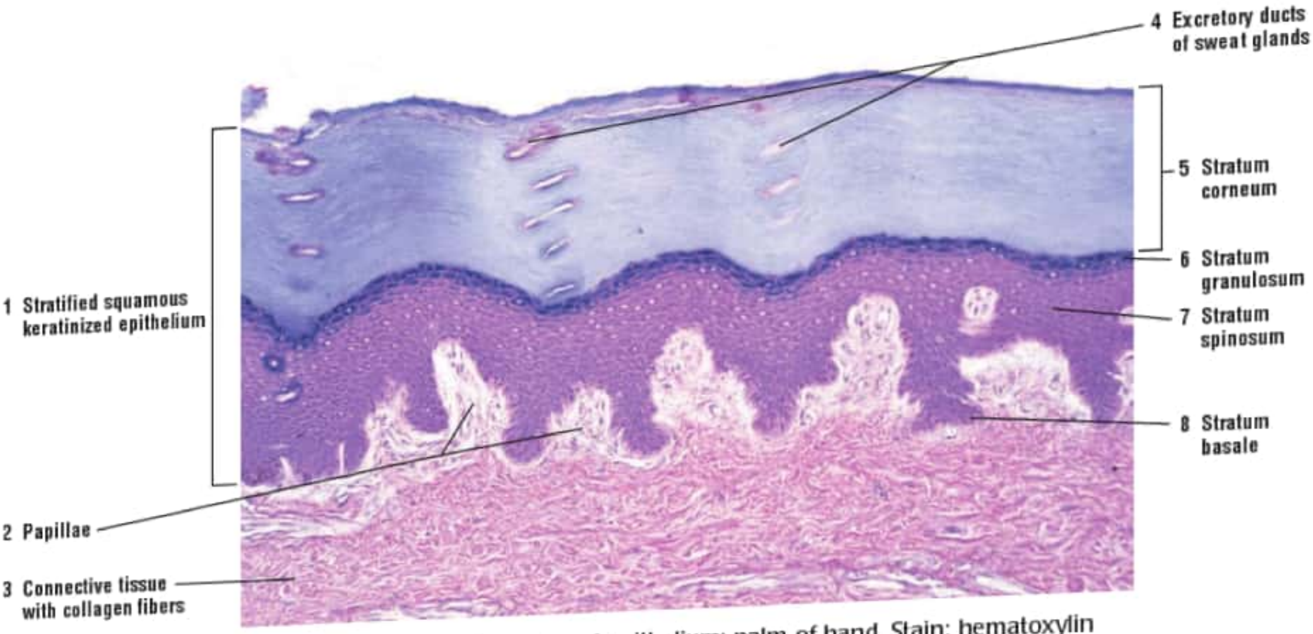

4 Excretory ducts of sweat glands
5 Stratum corneum
6 Stratum granulosum
7 Stratum spinosum
8 Stratum basale
1 Stratified squamous keratinized epithelium
2 Papillae
3 Connective tissue with collagen fibers

FIGURE 2.10 ■ Stratified squamous keratinized epithelium: palm of hand. Stain: hematoxylin and eosin. ×40.

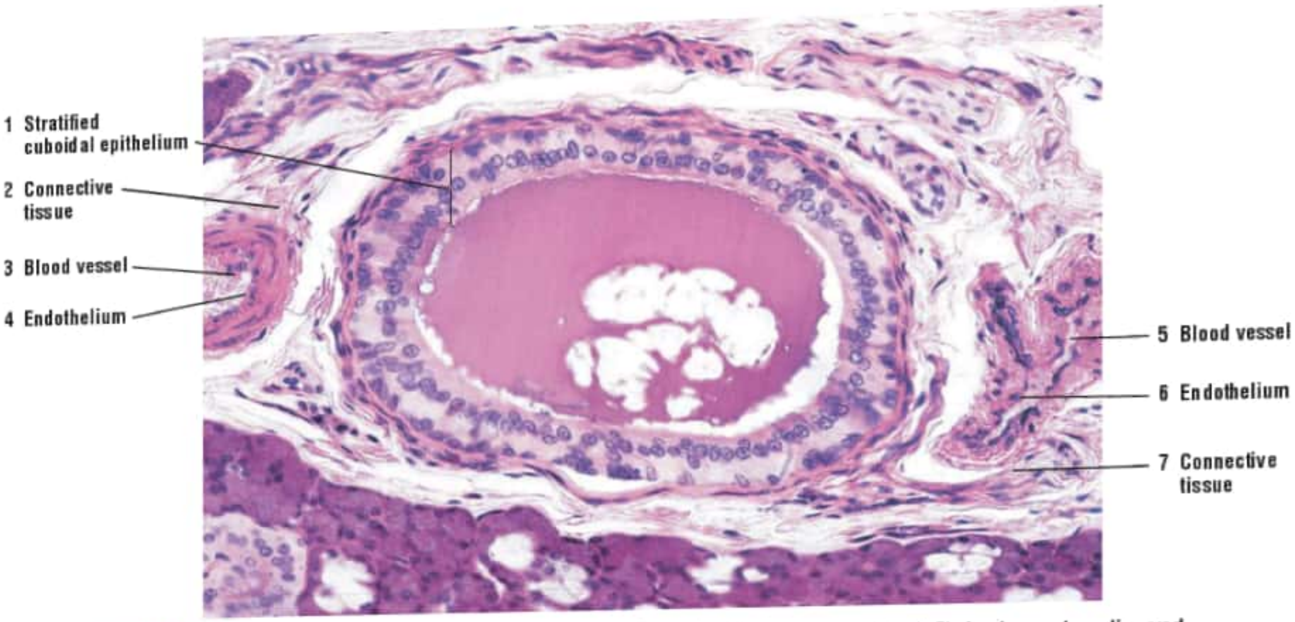

1 Stratified cuboidal epithelium
2 Connective tissue
3 Blood vessel
4 Endothelium
5 Blood vessel
6 Endothelium
7 Connective tissue

FIGURE 2.11 ■ Stratified cuboidal epithelium: excretory duct in salivary gland. Stain: hematoxylin and eosin. ×100.

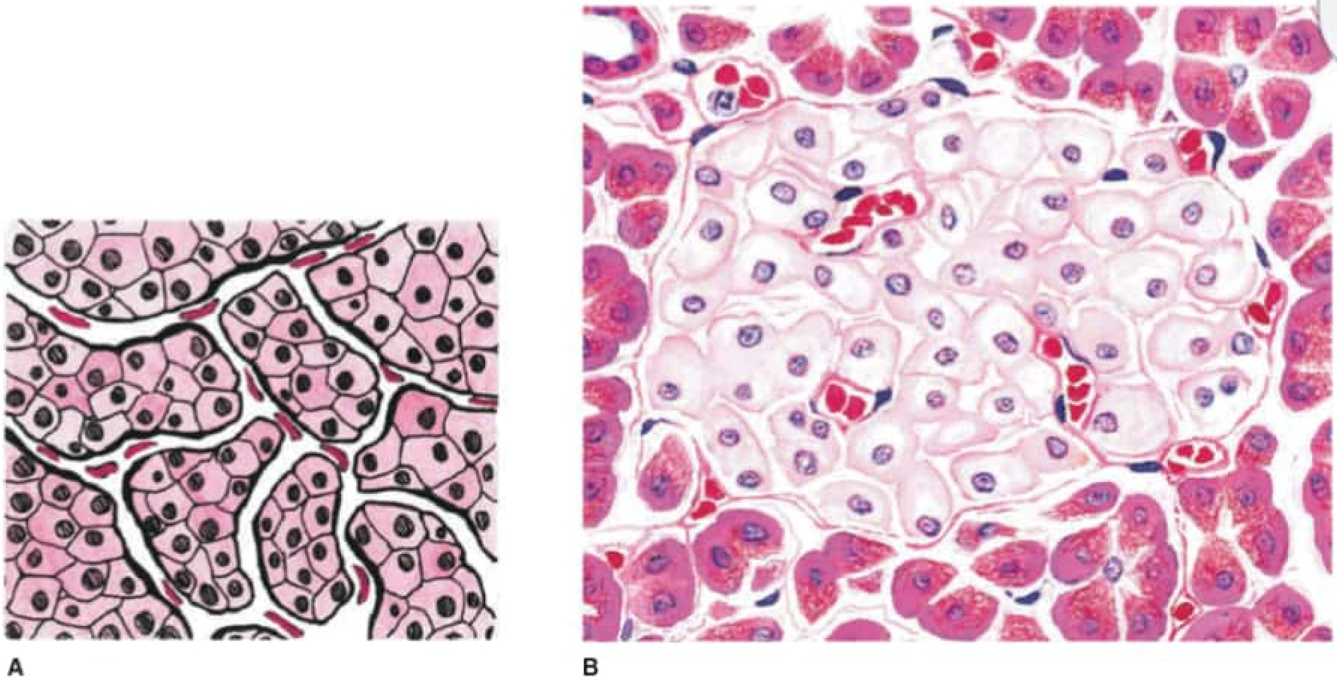


FIGURE 2.18 ■ Endocrine gland: plancreatic islet. (A) Diagram of pancreatic islet. (B) High magnification of endocrine and exocrine pancreas. Stain: hematoxylin and eosin. High magnification.

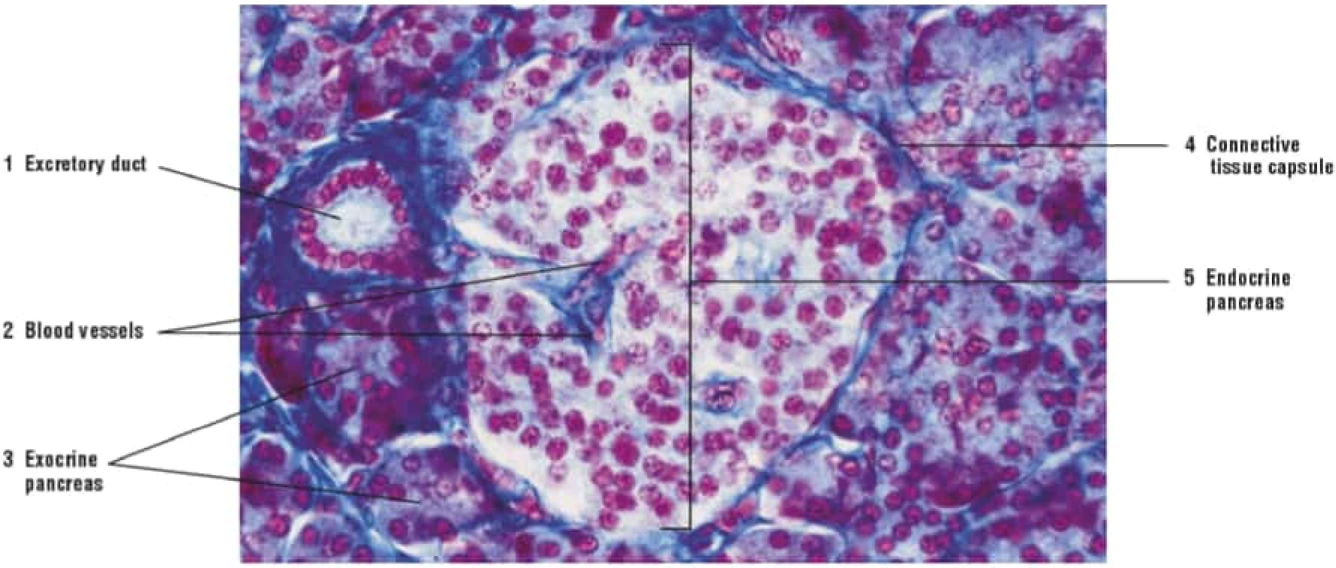

1 Excretory duct
2 Blood vessels
3 Exocrine pancreas
4 Connective tissue capsule
5 Endocrine pancreas

FIGURE 2.19 ■ Endocrine and exocrine pancreas. Stain: Mallory-Azan. ×100.

The fixed permanent cells of connective tissues are the **fibroblasts (2)**. The fibroblasts (2) a flattened cells with an oval nucleus, sparse chromatin, and one or two nucleoli. Fix **macrophages,** or **histiocytes (12),** are always present in the connective tissue. When inactive, th appear similar to fibroblasts, although their processes may be more irregular and their nuc smaller. Phagocytic inclusions, however, alter the cytoplasm of the macrophages. In this illustr tion, the cytoplasm of different macrophages (12) is filled with dense-staining particles that were ingested by these cells.

Mast cells (1,9) are also present in loose connective tissue and are seen as single or grouped cells along small blood vessels **(capillary, 7)**. The mast cells (1, 9) are usually ovoid, with a small, centrally placed nucleus and cytoplasm filled with fine, closely packed granules that stain dense or deep red with neutral red stain.

Numerous different blood cells are also seen in the loose connective tissue. **Small lymphocytes (6)** exhibit a dense-staining nucleus that occupies most of the cell cytoplasm. **Large lymphocytes (8)** also exhibit a dense nucleus with more cytoplasm. Loose connective tissue also contains blood cells such as eosinophils and neutrophils, and adipose cells. These are illustrated in greater detail below in Figure 3.2, and in loose connective tissue in Figure 3.4 and mesentery of an intestine in Figure 3.11, respectively.

The faint background around the fibers and cells is the ground substance.

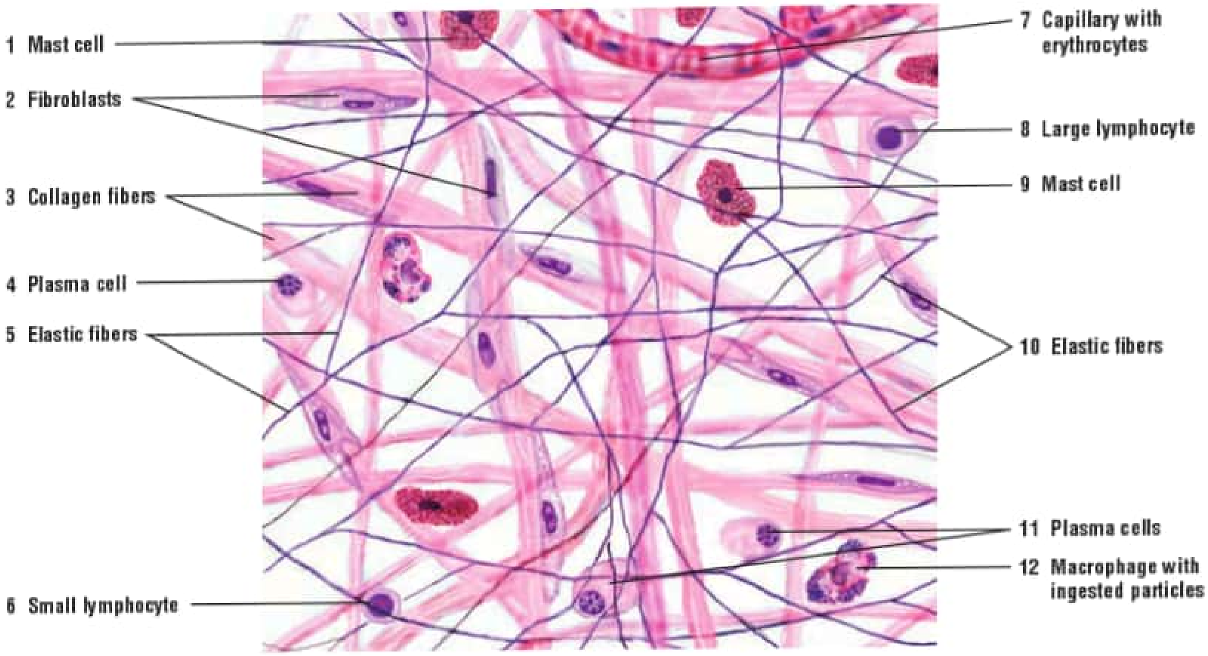

1 Mast cell
2 Fibroblasts
3 Collagen fibers
4 Plasma cell
5 Elastic fibers
6 Small lymphocyte
7 Capillary with erythrocytes
8 Large lymphocyte
9 Mast cell
10 Elastic fibers
11 Plasma cells
12 Macrophage with ingested particles

FIGURE 3.1 ■ Loose connective tissue (spread). Stained for cells and fibers. High magnification.

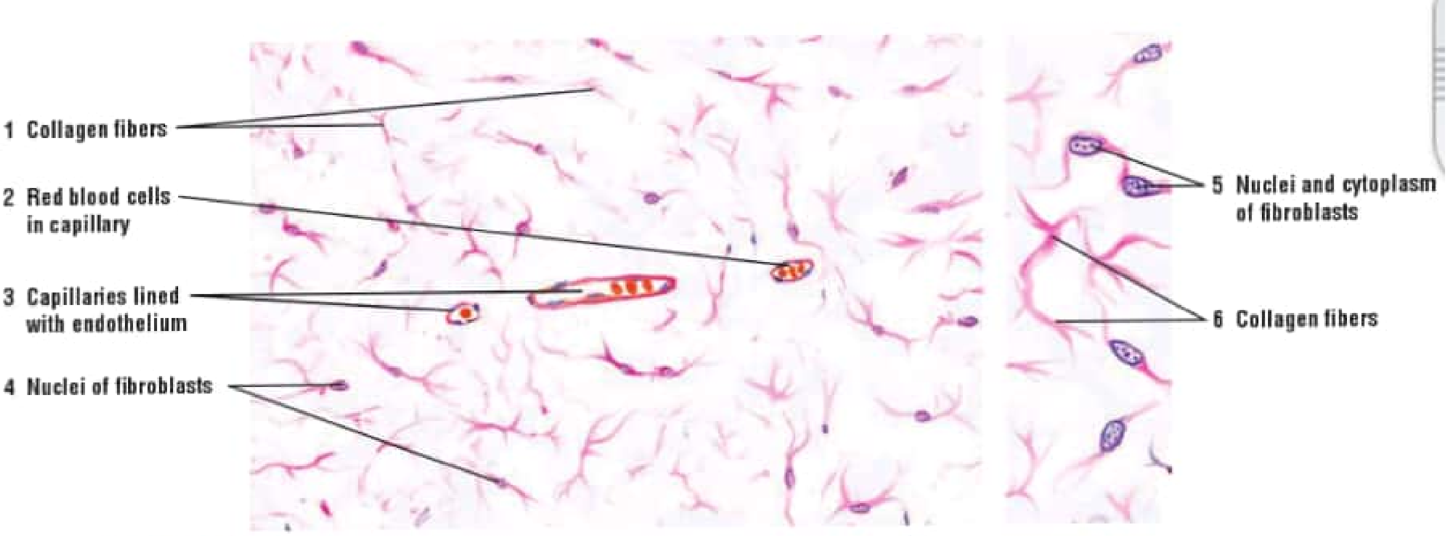

1 Collagen fibers
2 Red blood cells in capillary
3 Capillaries lined with endothelium
4 Nuclei of fibroblasts
5 Nuclei and cytoplasm of fibroblasts
6 Collagen fibers

FIGURE 3.3 ■ Embryonic connective tissue. Stain: hematoxylin and eosin. Left, low magnification; right, high magnification.

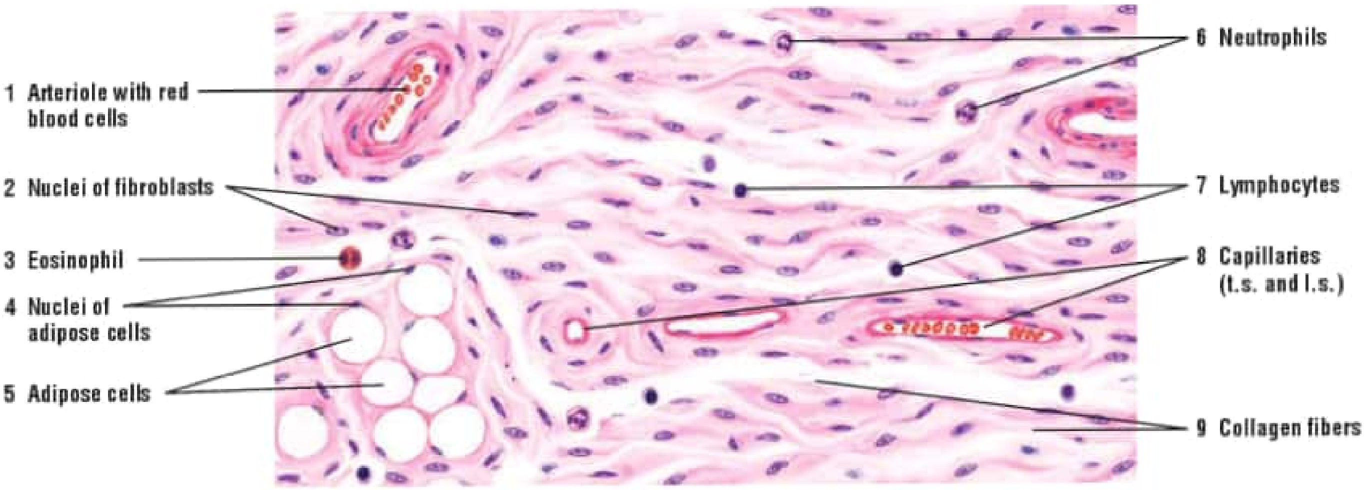

1 Arteriole with red blood cells
2 Nuclei of fibroblasts
3 Eosinophil
4 Nuclei of adipose cells
5 Adipose cells
6 Neutrophils
7 Lymphocytes
8 Capillaries (t.s. and l.s.)
9 Collagen fibers

FIGURE 3.4 ■ Loose connective tissue with blood vessels and adipose cells. Stain: hematoxylin and eosin. High magnification.

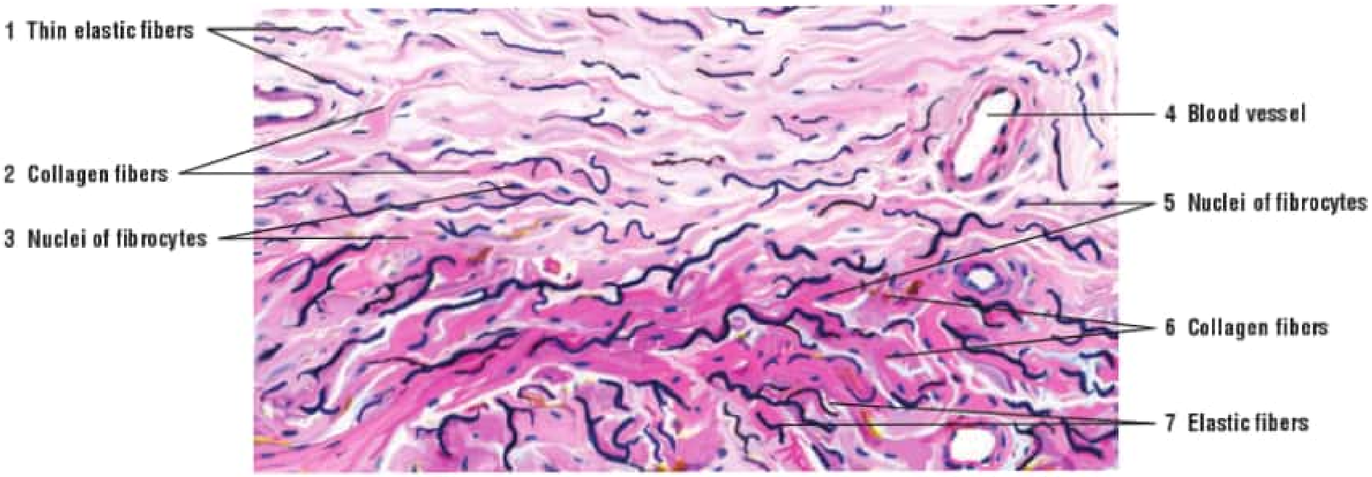

1 Thin elastic fibers
2 Collagen fibers
3 Nuclei of fibrocytes
4 Blood vessel
5 Nuclei of fibrocytes
6 Collagen fibers
7 Elastic fibers

FIGURE 3.5 ■ Dense irregular and loose irregular connective tissue. Stain: Verhoeff's elastin stain and Van Gieson's. Medium magnification.

In addition to proteoglycans, connective tissue also contains several cell **adhesive glyc** **proteins,** which bind cells to the fibers. One glycoprotein, **fibronectin,** is the adhesion protei It binds connective tissue cells, collagen fibers, and proteoglycans, thereby interconnecting a three components of the connective tissue. Integral proteins of the plasma membrane, calle **integrins,** bind to extracellular collagen fibers and to actin filaments in the cytoskeleton, thu establishing a structural continuity between the cytoskeleton and the extracellular matri **Laminin** is a large glycoprotein and a major component of the cell basement membrane. Th protein binds epithelial cells to the basal lamina.

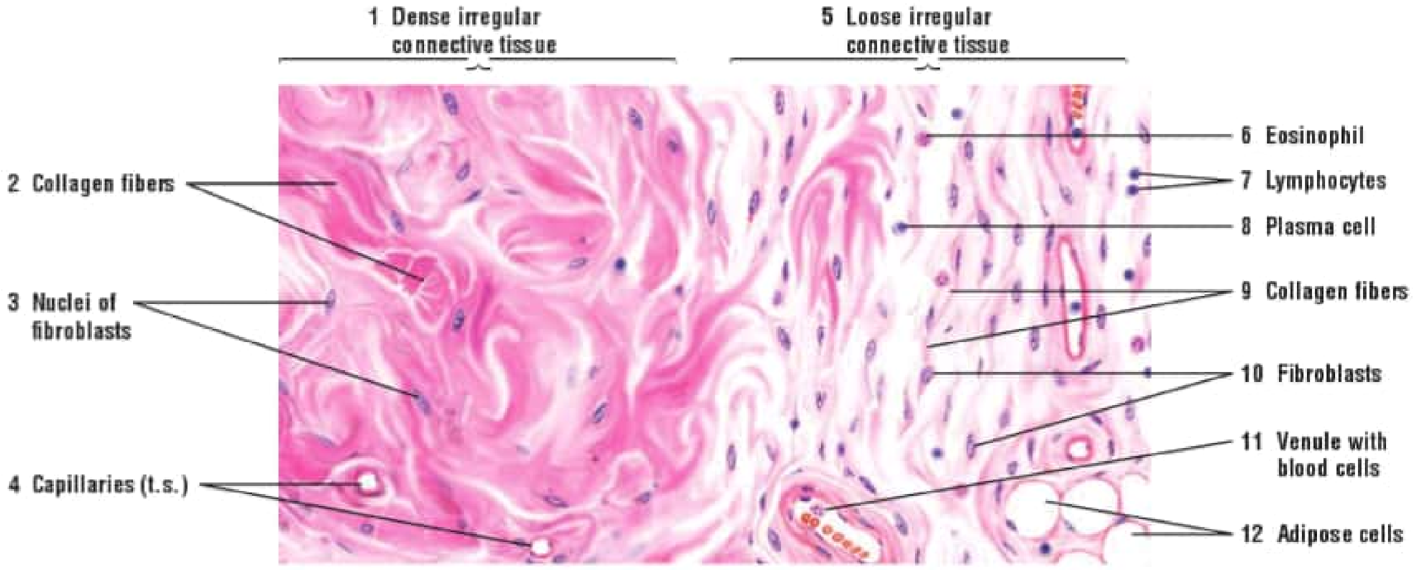

1 Dense irregular connective tissue
5 Loose irregular connective tissue
2 Collagen fibers
3 Nuclei of fibroblasts
4 Capillaries (t.s.)
6 Eosinophil
7 Lymphocytes
8 Plasma cell
9 Collagen fibers
10 Fibroblasts
11 Venule with blood cells
12 Adipose cells

FIGURE 3.6 ■ Dense irregular and loose irregular connective tissue. Stain: hematoxylin and eosin. High magnification.

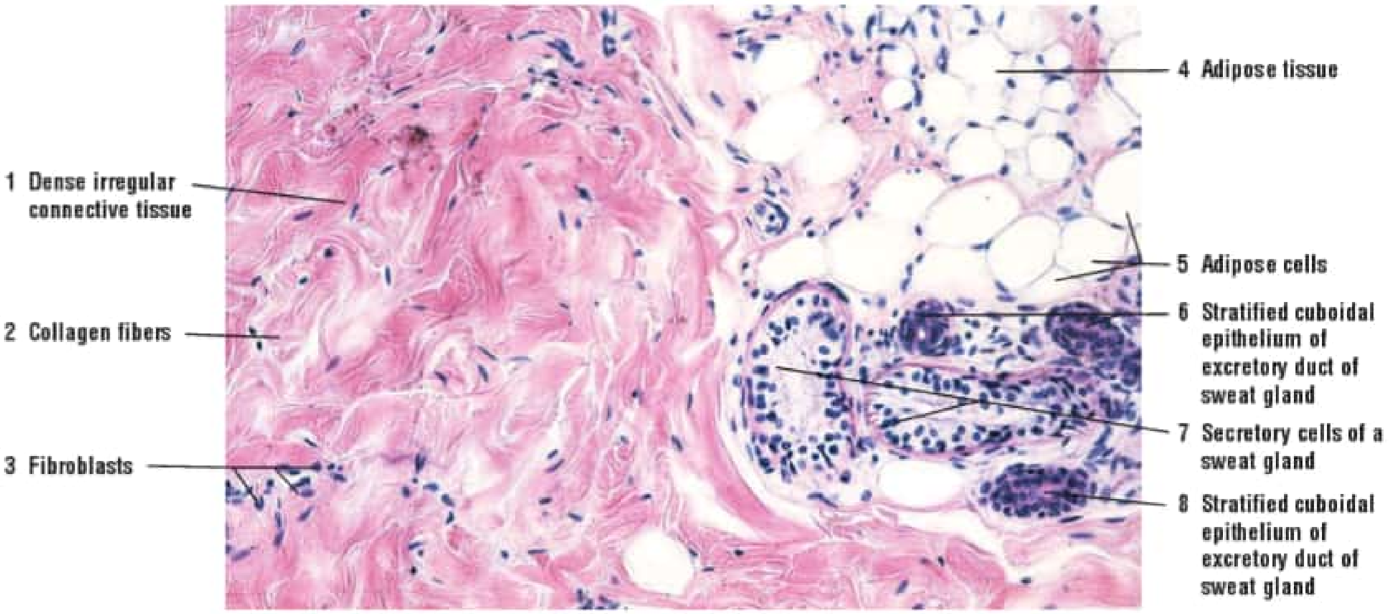

4 Adipose tissue
1 Dense irregular connective tissue
5 Adipose cells
6 Stratified cuboidal epithelium of excretory duct of sweat gland
2 Collagen fibers
7 Secretory cells of a sweat gland
3 Fibroblasts
8 Stratified cuboidal epithelium of excretory duct of sweat gland

FIGURE 3.7 ■ Dense irregular connective tissue and adipose tissue. Stain: hematoxylin and eosin. ×64.

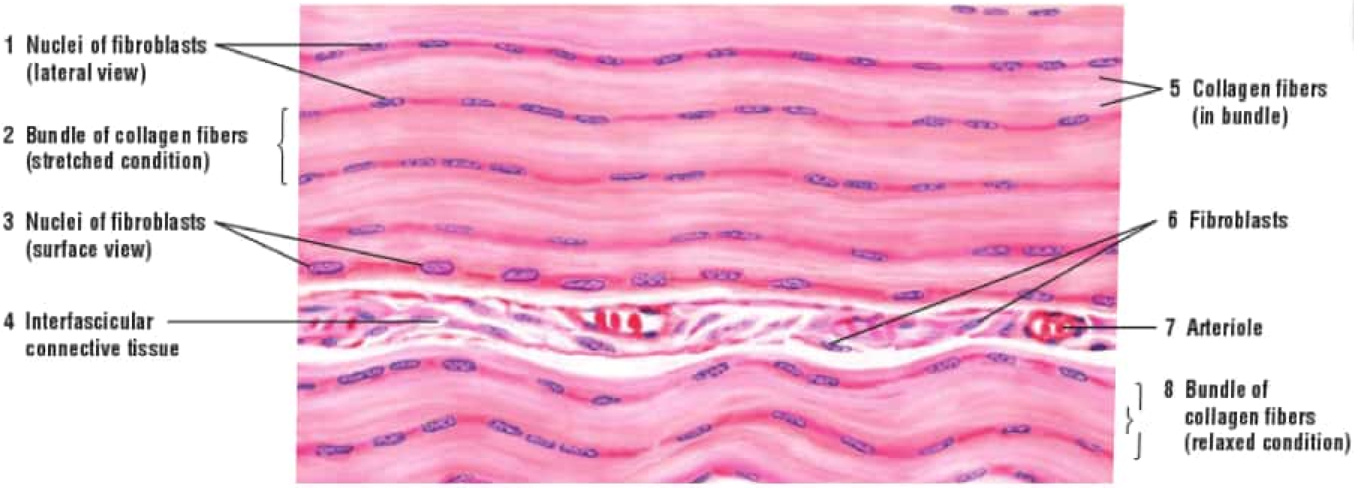

1 Nuclei of fibroblasts (lateral view)
2 Bundle of collagen fibers (stretched condition)
3 Nuclei of fibroblasts (surface view)
4 Interfascicular connective tissue
5 Collagen fibers (in bundle)
6 Fibroblasts
7 Arteriole
8 Bundle of collagen fibers (relaxed condition)

FIGURE 3.8 ■ Dense regular connective tissue: tendon (longitudinal section). Stain: hematoxylin and eosin. Medium magnification.

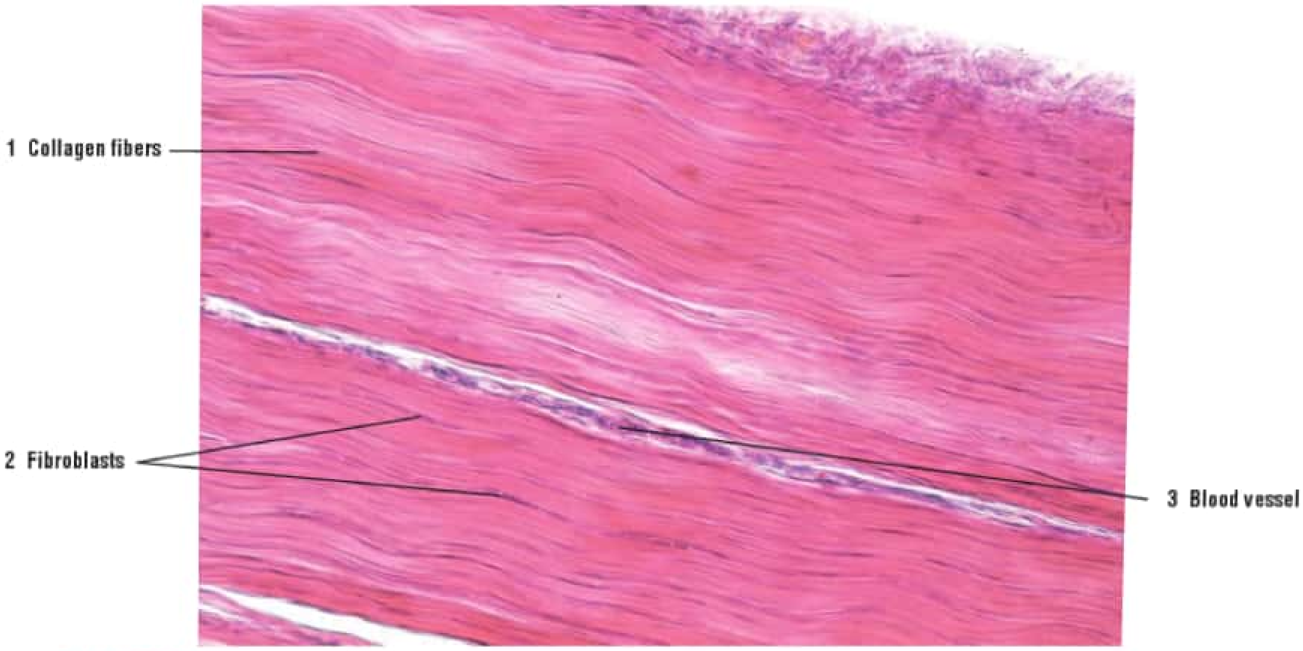

1 Collagen fibers
2 Fibroblasts
3 Blood vessel

FIGURE 3.9 ■ Dense regular connective tissue: tendon (longitudinal section). Stain: hematoxylin and eosin. ×64.

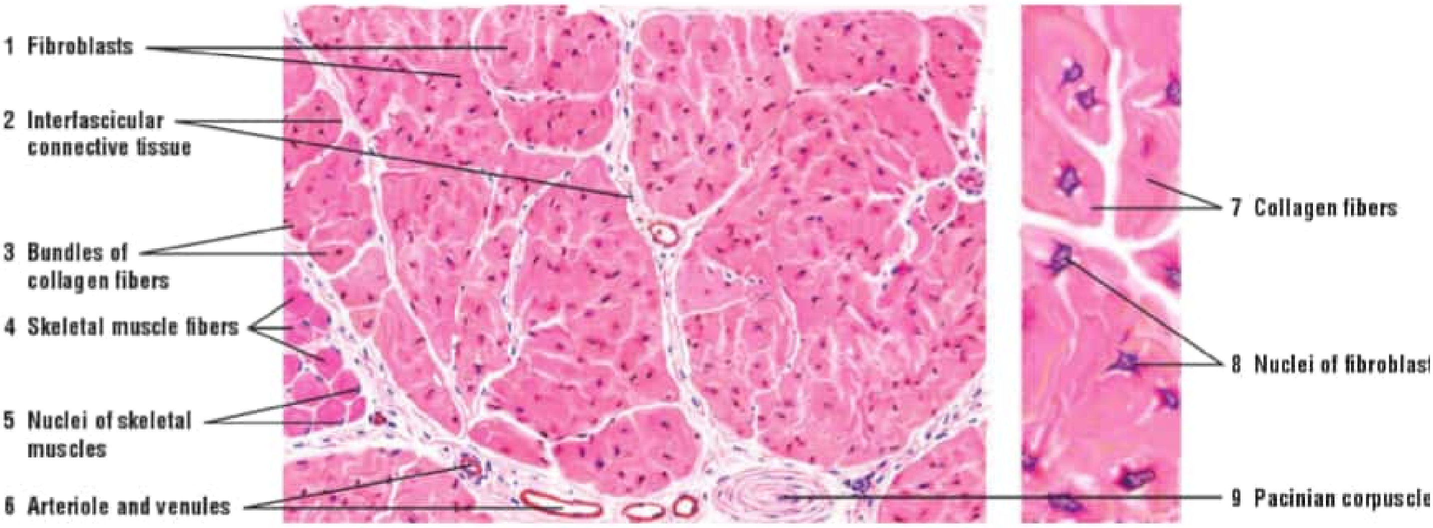

1 Fibroblasts
2 Interfascicular connective tissue
3 Bundles of collagen fibers
4 Skeletal muscle fibers
5 Nuclei of skeletal muscles
6 Arteriole and venules
7 Collagen fibers
8 Nuclei of fibroblast
9 Pacinian corpuscle

FIGURE 3.10 ■ Dense regular connective tissue: tendon (transverse section). Stain: hematoxylin and eosin. Left, low magnification; right: high magnification.

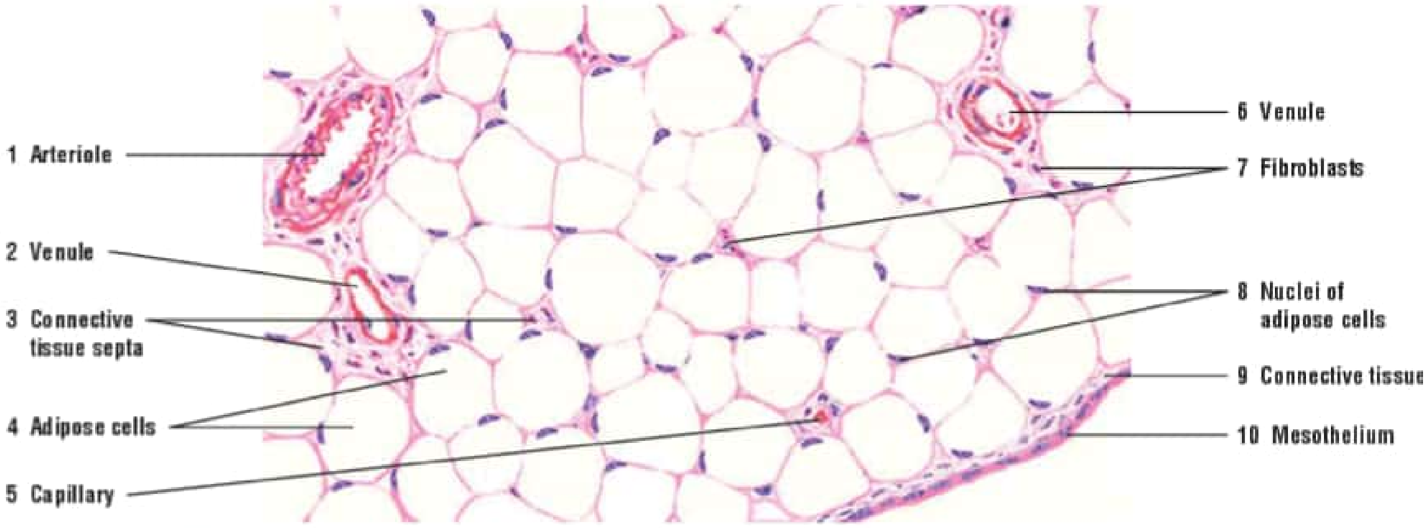

1 Arteriole
2 Venule
3 Connective tissue septa
4 Adipose cells
5 Capillary
6 Venule
7 Fibroblasts
8 Nuclei of adipose cells
9 Connective tissue
10 Mesothelium

FIGURE 3.11 ■ Adipose tissue in the intestine. Stain: hematoxylin and eosin. Medium magnification.

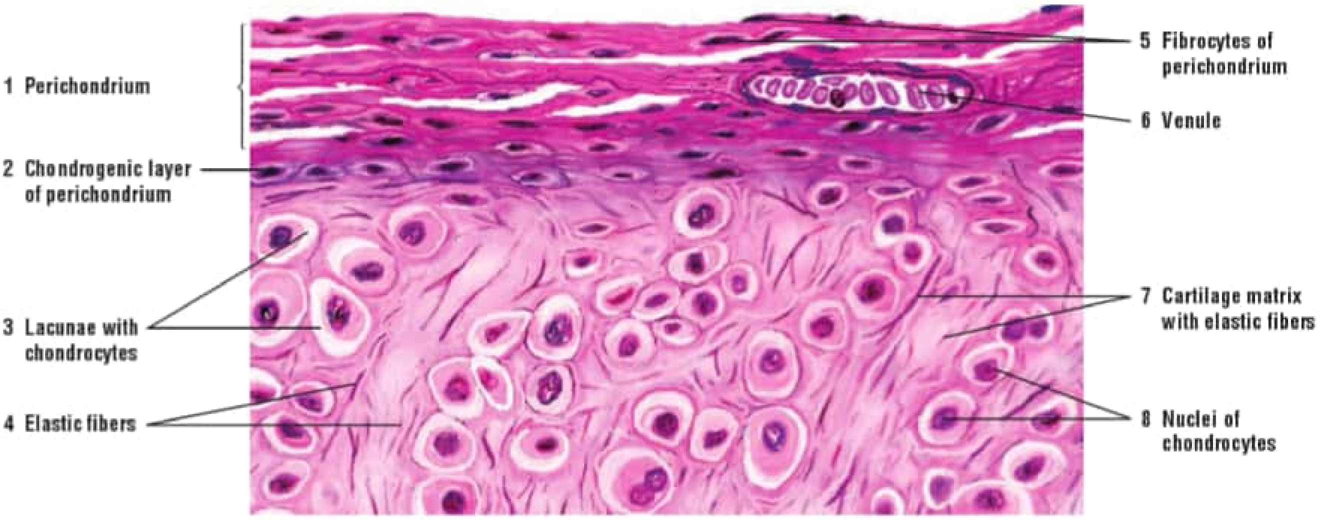

1 Perichondrium
2 Chondrogenic layer of perichondrium
3 Lacunae with chondrocytes
4 Elastic fibers
5 Fibrocytes of perichondrium
6 Venule
7 Cartilage matrix with elastic fibers
8 Nuclei of chondrocytes

FIGURE 4.5 ■ Elastic cartilage: epiglottis. Stain: silver. High magnification.

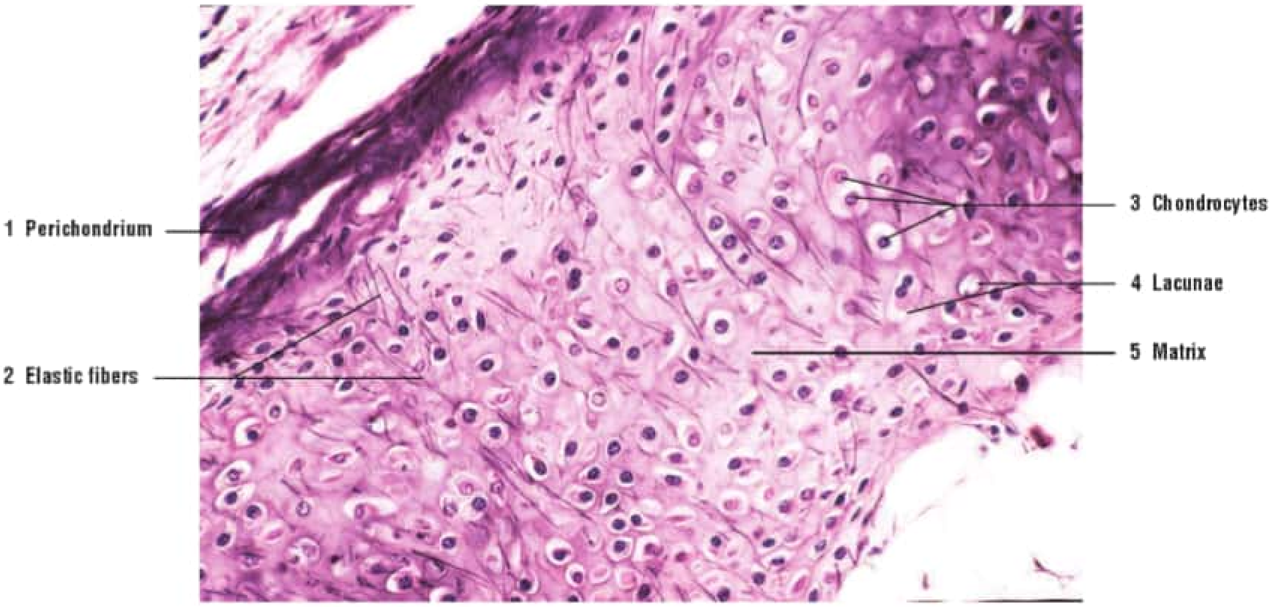

1 Perichondrium
2 Elastic fibers
3 Chondrocytes
4 Lacunae
5 Matrix

FIGURE 4.6 ■ Elastic cartilage: epiglottis. Stain: silver. ×80.

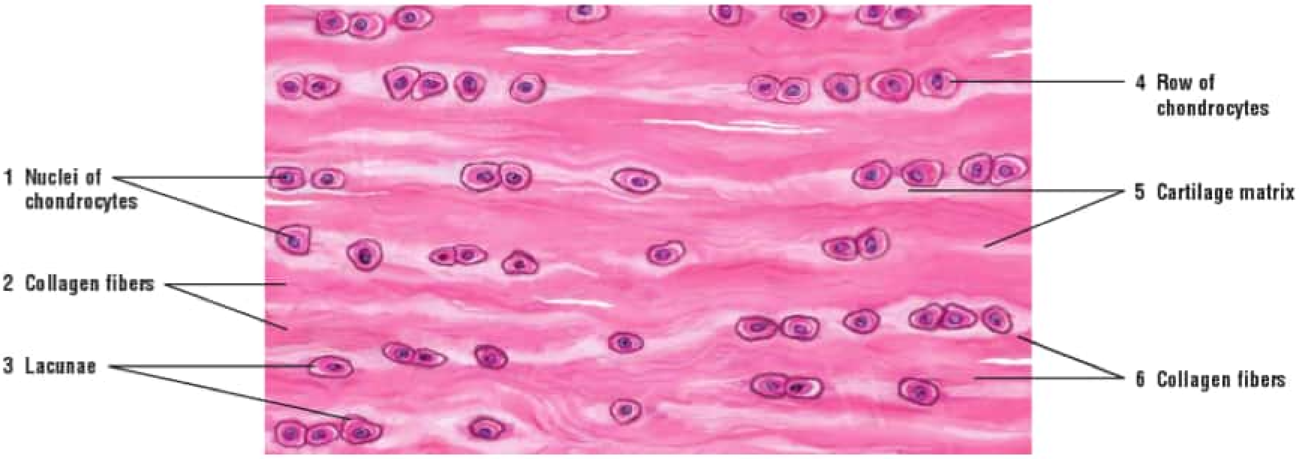

1 Nuclei of chondrocytes
2 Collagen fibers
3 Lacunae
4 Row of chondrocytes
5 Cartilage matrix
6 Collagen fibers

FIGURE 4.7 ■ Fibrous cartilage: intervertebral disk. Stain: hematoxylin and eosin. High magnification.

individual osteocytes to communicate with adjacent osteocytes and with materials in the nearby blood vessels. In this manner, the canaliculi form complex connections around the blood vessels in the osteons and constitute an efficient exchange mechanism: nutrients are brought to the osteocytes, gaseous exchange takes place between the blood and cells, and metabolic wastes are removed from the osteocytes. The canaliculi keep the osteocytes alive, and the osteocytes, in turn, maintain the homeostasis of the surrounding bone matrix and blood concentrations of calcium and phosphates. When an osteocyte dies, the surrounding bone matrix is reabsorbed by osteoclasts.

Osteoclasts are large, multinucleated cells found along bone surfaces where resorption (removal of bone), remodeling, and repair of bone take place. They do not belong to the osteoprogenitor cell line. Instead, the osteoclasts originate from the fusion of blood or hemopoietic progenitor cells that belong to the mononuclear macrophage-monocyte cell line of the bone marrow. The main function of osteoclasts is bone resorption during remodeling (renewal or restructuring). Osteoclasts are often located on the resorbed surfaces or in shallow depressions in the bone matrix called Howship's lacunae. Lysosomal enzymes released by osteoclasts erode these depressions.

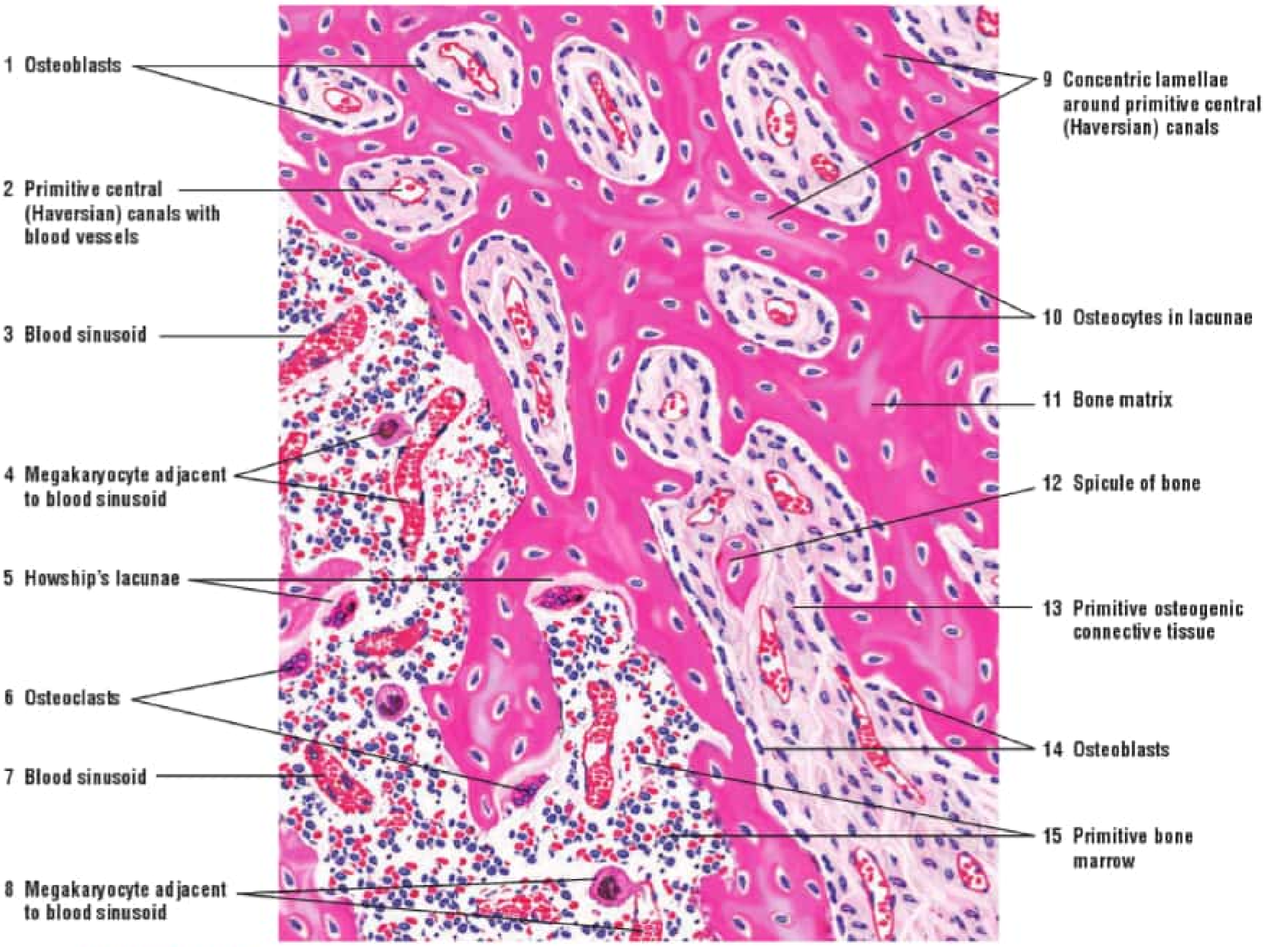

1 Osteoblasts
2 Primitive central (Haversian) canals with blood vessels
3 Blood sinusoid
4 Megakaryocyte adjacent to blood sinusoid
5 Howship's lacunae
6 Osteoclasts
7 Blood sinusoid
8 Megakaryocyte adjacent to blood sinusoid
9 Concentric lamellae around primitive central (Haversian) canals
10 Osteocytes in lacunae
11 Bone matrix
12 Spicule of bone
13 Primitive osteogenic connective tissue
14 Osteoblasts
15 Primitive bone marrow

FIGURE 4.12 ■ Bone formation: primitive bone marrow and development of osteons (Haversian systems; decalcified bone, transverse section). Stain: hematoxylin and eosin. Medium magnification.

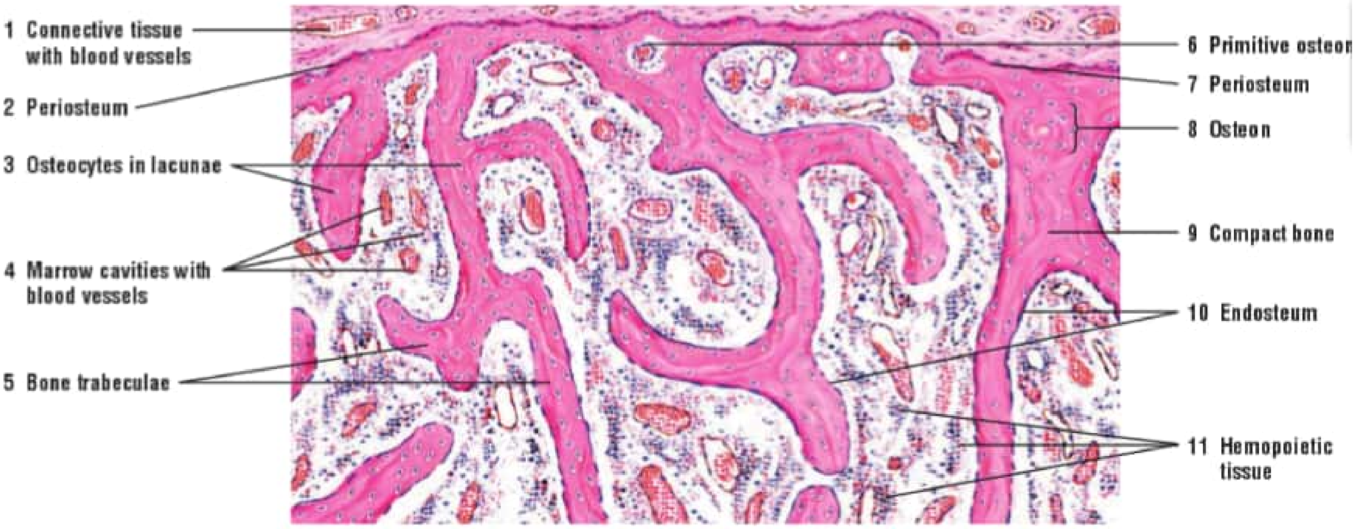

1 Connective tissue with blood vessels
2 Periosteum
3 Osteocytes in lacunae
4 Marrow cavities with blood vessels
5 Bone trabeculae
6 Primitive osteon
7 Periosteum
8 Osteon
9 Compact bone
10 Endosteum
11 Hemopoietic tissue

FIGURE 4.15 ■ Cancellous bone with trabeculae and bone marrow cavities: sternum (decalcified bone, transverse section). Stain: hematoxylin and eosin. Low magnification.

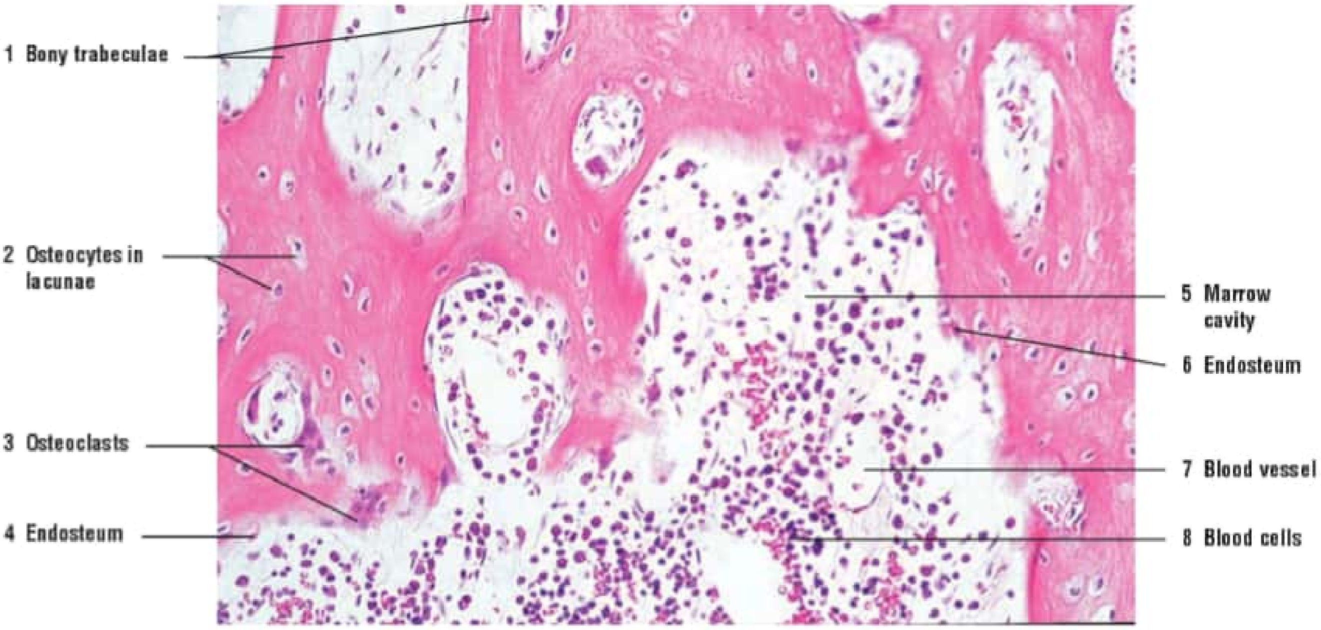

1 Bony trabeculae
2 Osteocytes in lacunae
3 Osteoclasts
4 Endosteum
5 Marrow cavity
6 Endosteum
7 Blood vessel
8 Blood cells

FIGURE 4.16 ■ Cancellous bone: sternum (decalcified bone, transverse section). Stain: hematoxylin and eosin. ×64.

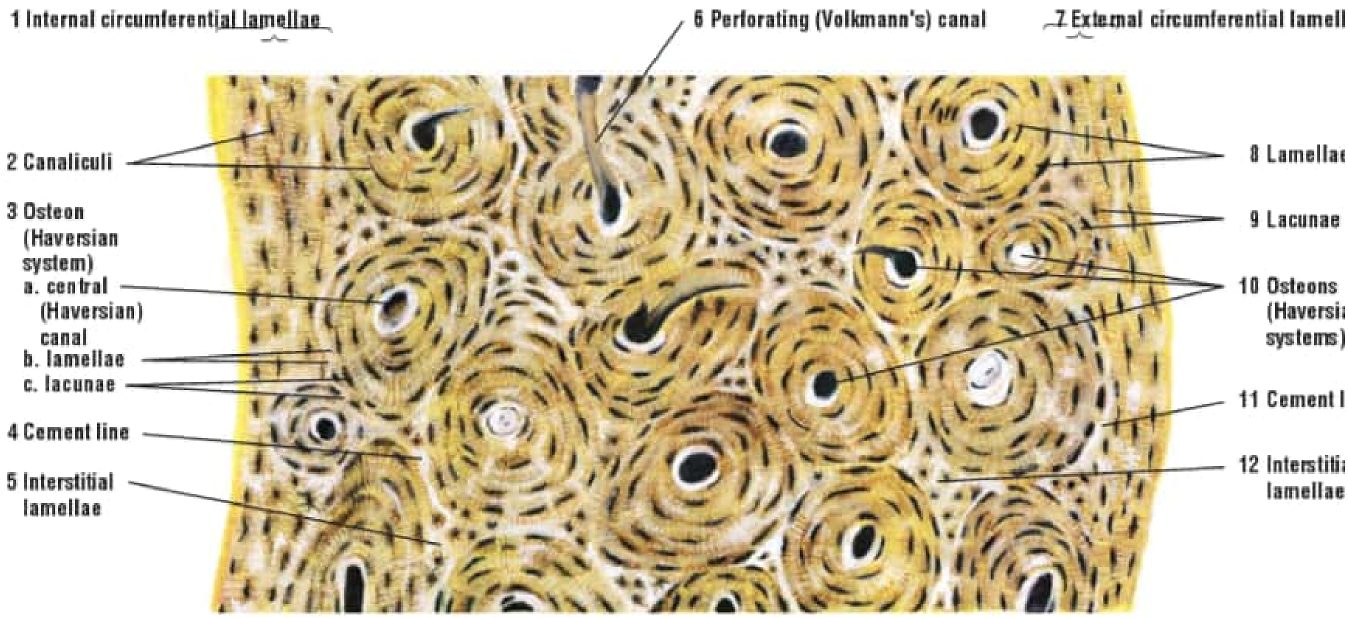

1 Internal circumferential lamellae
6 Perforating (Volkmann's) canal
7 External circumferential lamell
2 Canaliculi
3 Osteon
(Haversian
system)
a. central
(Haversian)
canal
b. lamellae
c. lacunae
4 Cement line
5 Interstitial
lamellae
8 Lamella
9 Lacunae
10 Osteons
(Haversi
systems)
11 Cement l
12 Interstiti
lamellae

FIGURE 4.17 ■ Dry, compact bone: ground, transverse section. Low magnification.

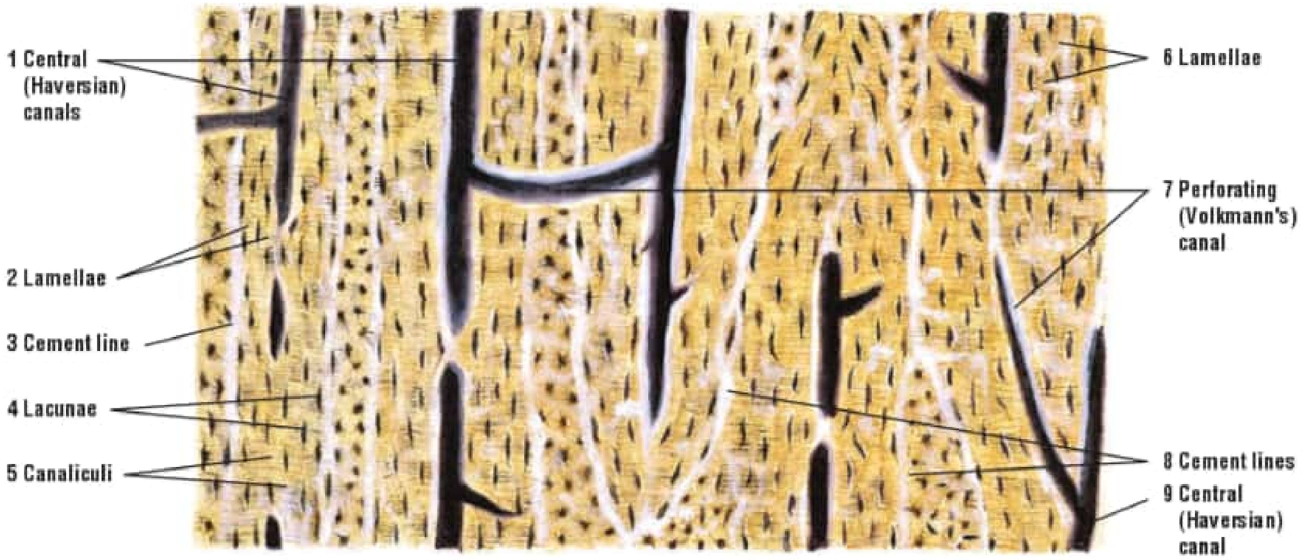

1 Central
(Haversian)
canals
2 Lamellae
3 Cement line
4 Lacunae
5 Canaliculi
6 Lamellae
7 Perforating
(Volkmann's)
canal
8 Cement lines
9 Central
(Haversian)
canal

FIGURE 4.18 ■ Dry, compact bone: ground, longitudinal section. Low magnification.

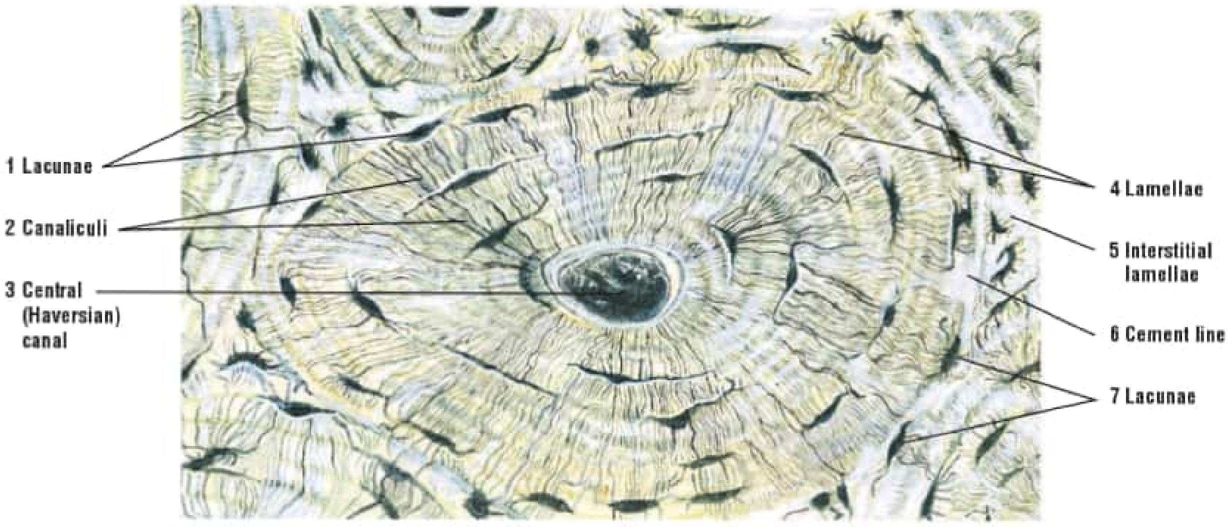

1 Lacunae
2 Canaliculi
3 Central (Haversian) canal
4 Lamellae
5 Interstitial lamellae
6 Cement line
7 Lacunae

FIGURE 4.19 ■ Dry, compact bone: an osteon, transverse section. High magnification.

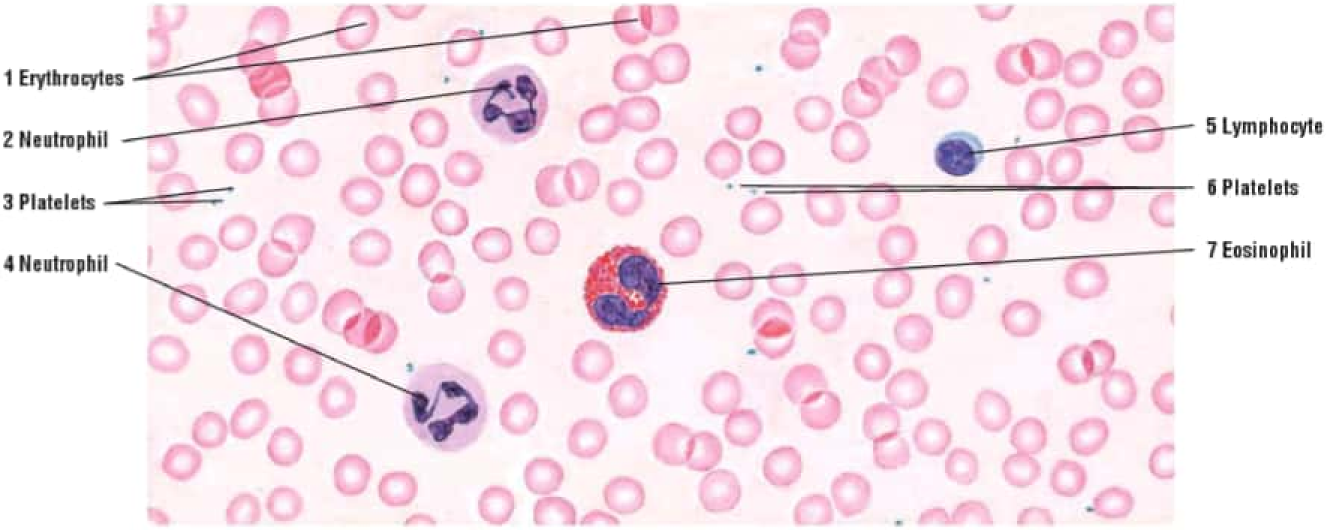

1 Erythrocytes
2 Neutrophil
3 Platelets
4 Neutrophil
5 Lymphocyte
6 Platelets
7 Eosinophil

FIGURE 5.1 ■ Human blood smear: erythrocytes, neutrophils, eosinophils, lymphocyte, and platelets. Stain: Wright's stain. High magnification.

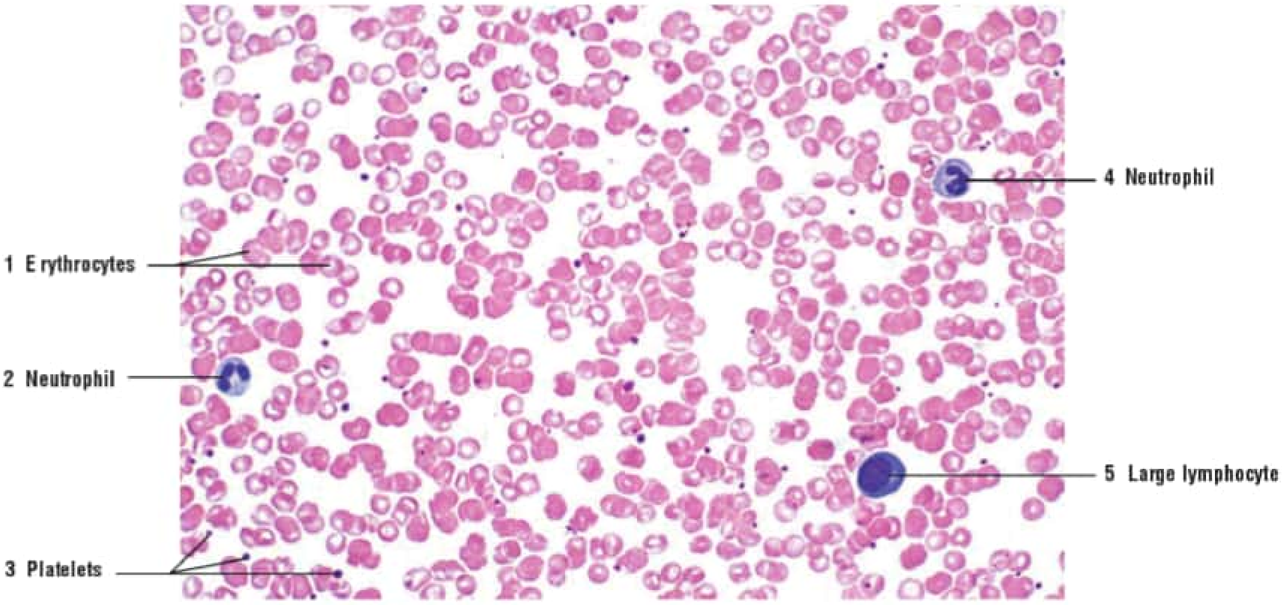

1 Erythrocytes
2 Neutrophil
3 Platelets
4 Neutrophil
5 Large lymphocyte

FIGURE 5.2 ■ Human blood smear: red blood cells, neutrophils, large lymphocytes, and platelets. Stain: Wright's stain. ×205.

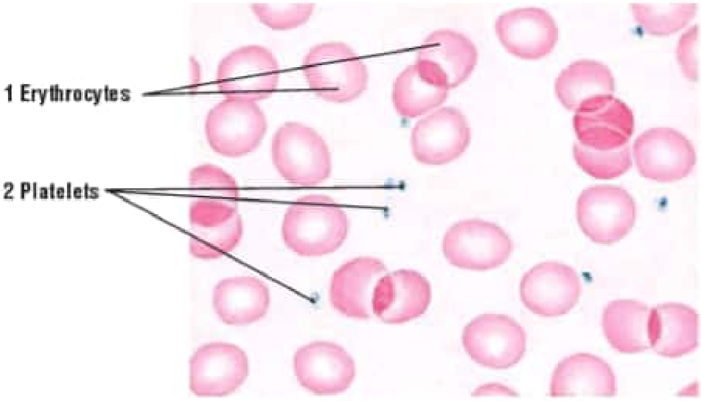

1 Erythrocytes
2 Platelets

FIGURE 5.3 ■ Erythrocytes and platelets in blood smear. Stain: Wright's stain. Oil immersion.

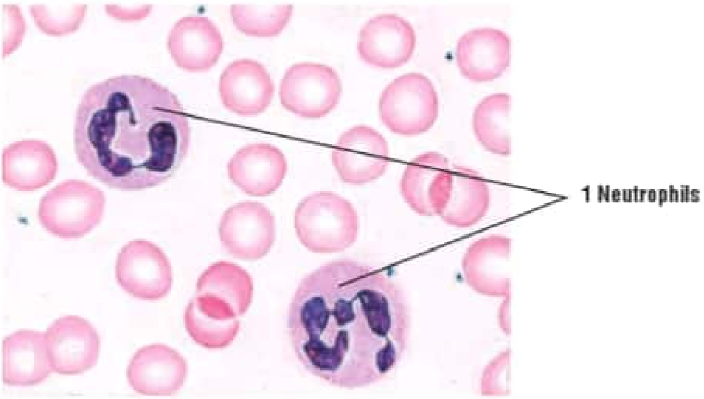

1 Neutrophils

FIGURE 5.4 ■ Neutrophils and erythrocytes. Stain: Wright's stain. Oil immersion.

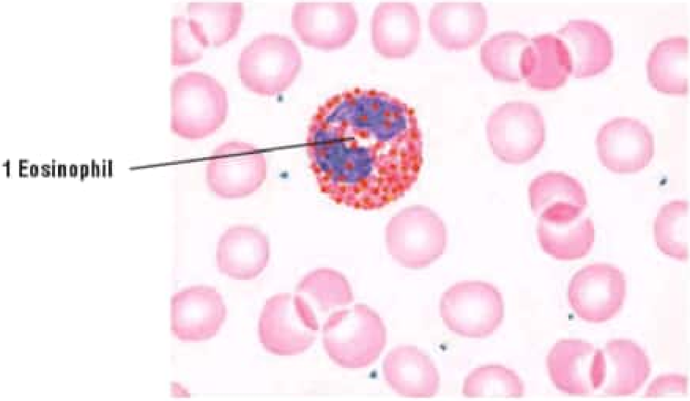

1 Eosinophil

FIGURE 5.5 ■ Eosinophil. Stain: Wright's stain. Oil immersion.

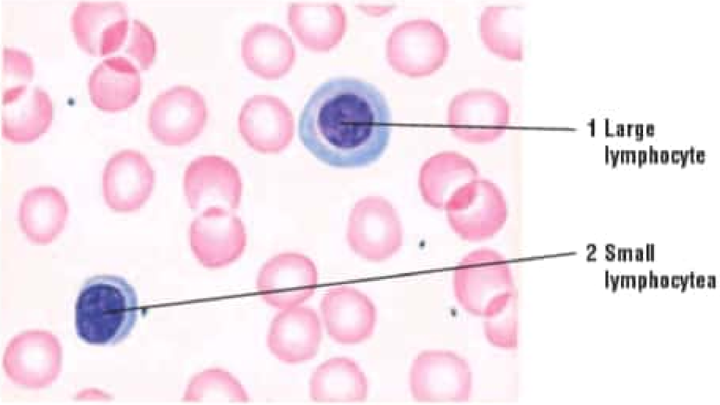

1 Large lymphocyte
2 Small lymphocytea

FIGURE 5.6 ■ Lymphocytes. Stain: Wright's stain. Oil immersion.

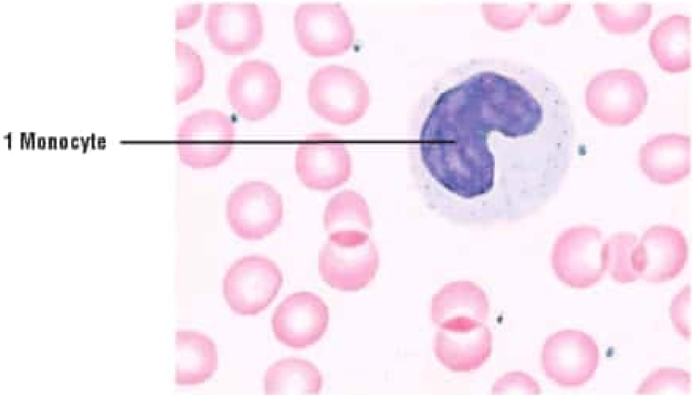


FIGURE 5.7 ■ Monocyte. Stain: Wright's stain. Oil immersion.

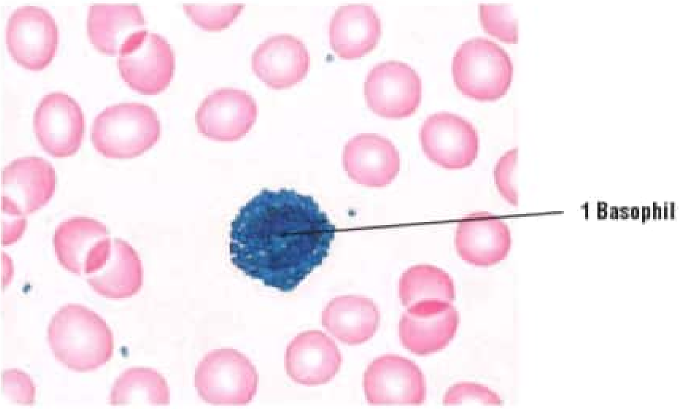


FIGURE 5.8 ■ Basophil. Stain: Wright's stain. Oil immersion.

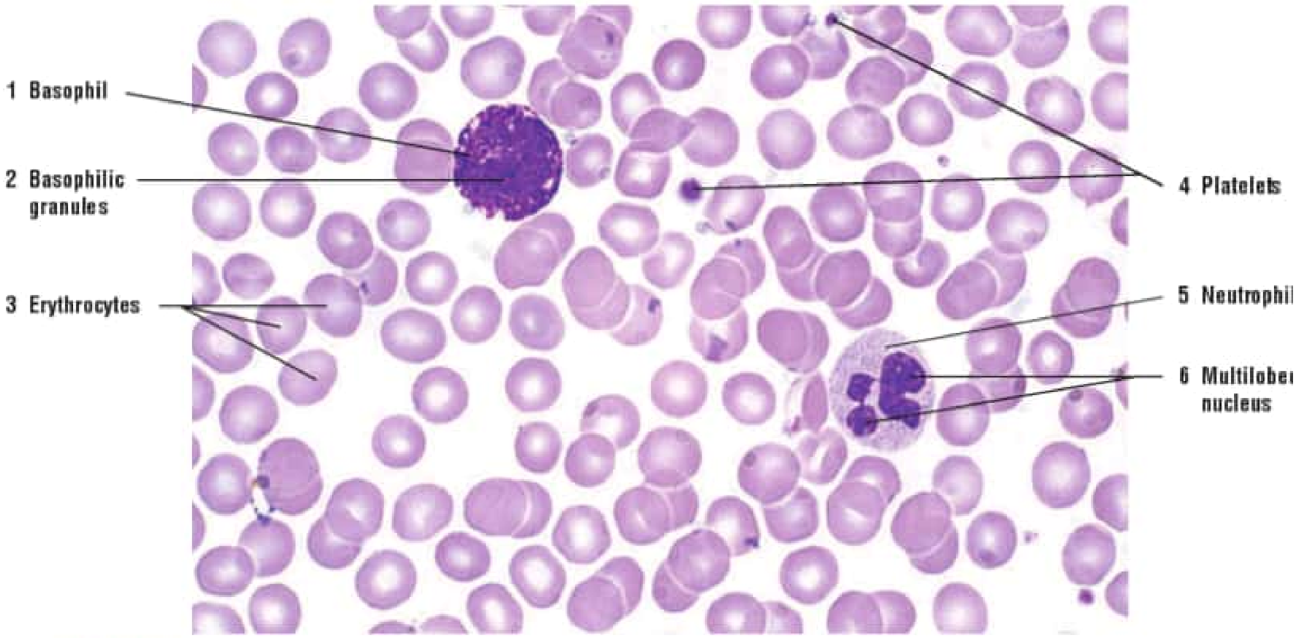

1 Basophil
2 Basophilic granules
3 Erythrocytes
4 Platelets
5 Neutrophil
6 Multilobe
nucleus

FIGURE 5.9 ■ Human blood smear: basophil, neutrophil, red blood cells, and platelets. Stain: Wright's stain. ×320.

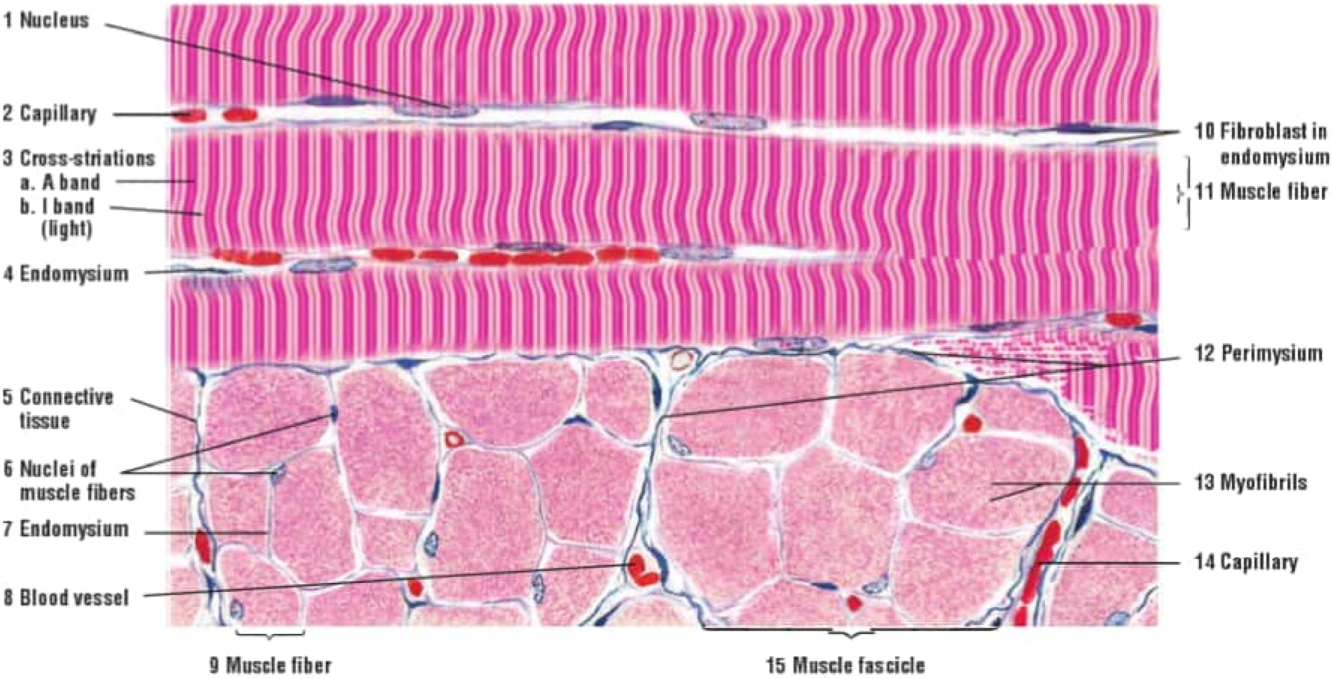

1 Nucleus
2 Capillary
3 Cross-striations
a. A band
b. I band (light)
4 Endomysium
5 Connective tissue
6 Nuclei of muscle fibers
7 Endomysium
8 Blood vessel
9 Muscle fiber
10 Fibroblast in endomysium
11 Muscle fiber
12 Perimysium
13 Myofibrils
14 Capillary
15 Muscle fascicle

FIGURE 6.1 ■ Longitudinal and transverse sections of skeletal (striated) muscles of the tongue. Stain: hematoxylin and eosin. High magnification.

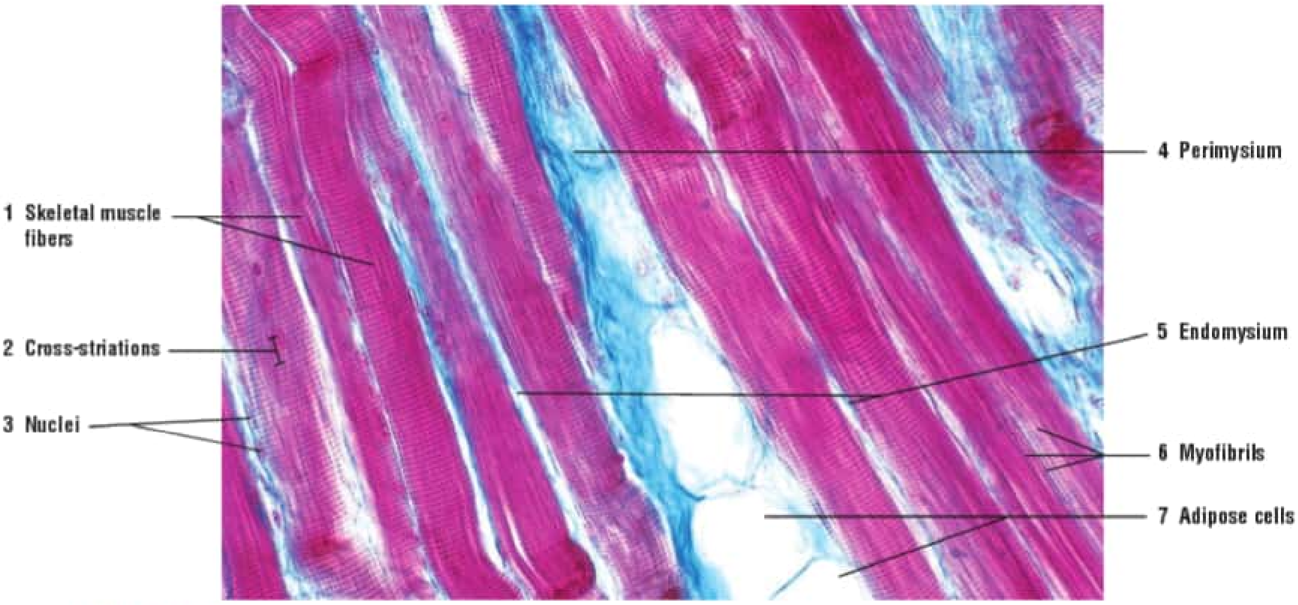

1 Skeletal muscle fibers
2 Cross-striations
3 Nuclei
4 Perimysium
5 Endomysium
6 Myofibrils
7 Adipose cells

FIGURE 6.2 ■ Skeletal (striated) muscles of the tongue (longitudinal section). Stain: Masson's trichrome. ×130.

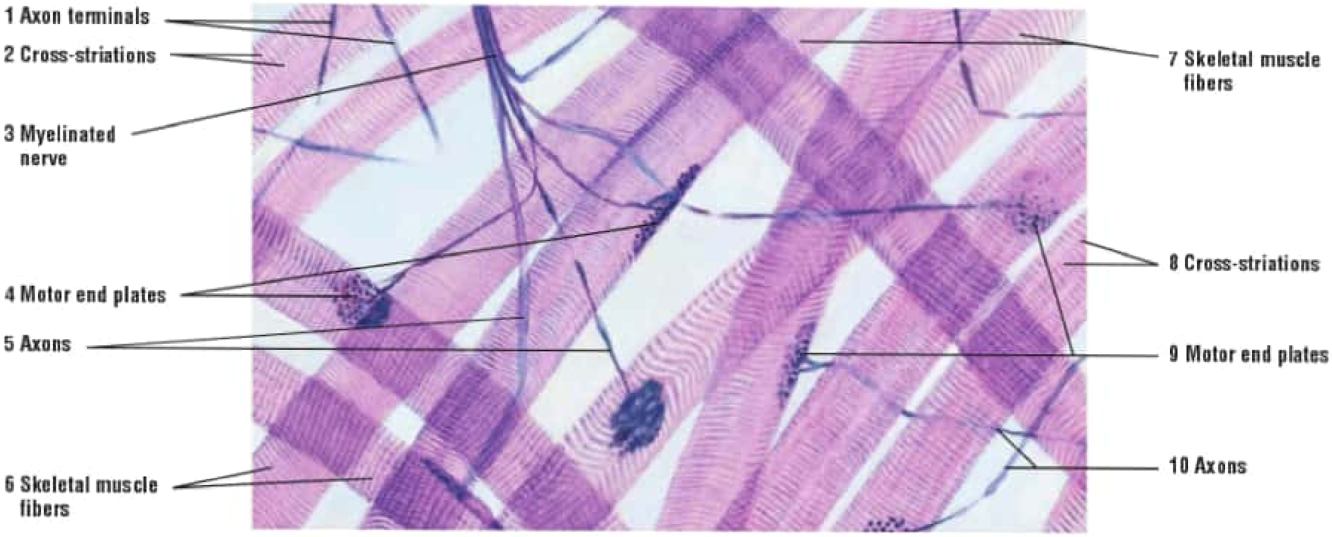

1 Axon terminals
2 Cross-striations
3 Myelinated nerve
4 Motor end plates
5 Axons
6 Skeletal muscle fibers
7 Skeletal muscle fibers
8 Cross-striations
9 Motor end plates
10 Axons

FIGURE 6.3 ■ Skeletal muscles, nerves, axons, and motor end plates. Stain: silver. High magnification.

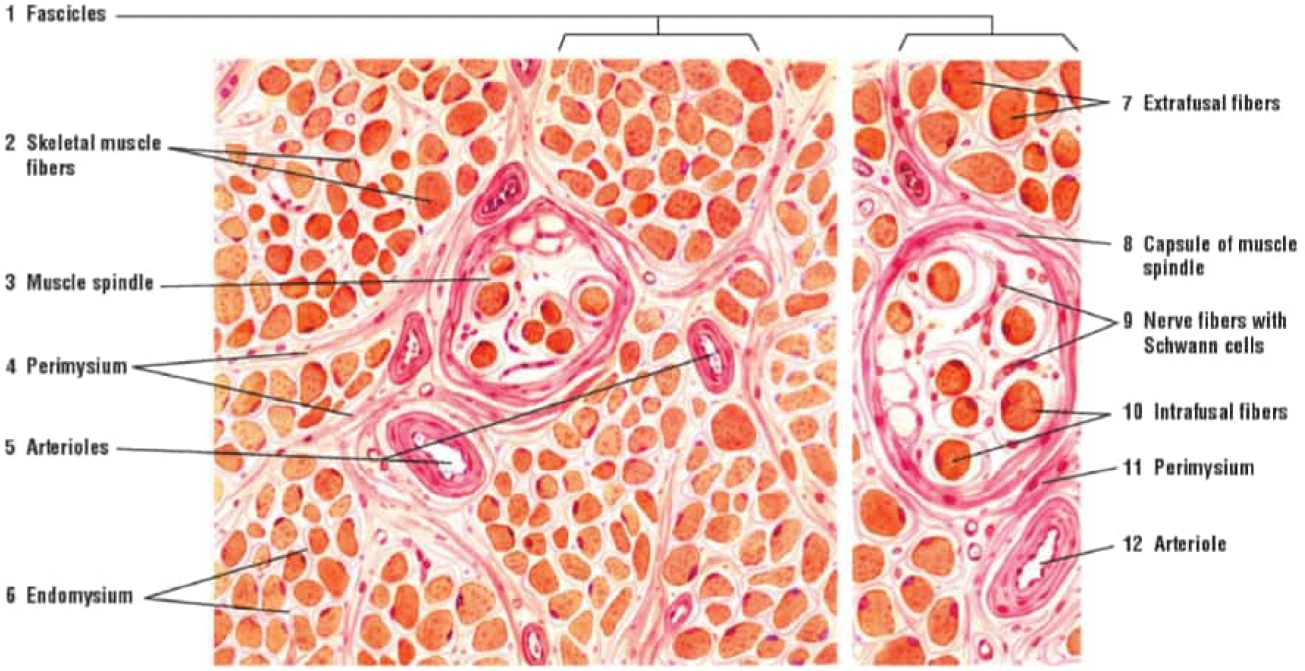

1 Fascicles
2 Skeletal muscle fibers
3 Muscle spindle
4 Perimysium
5 Arterioles
6 Endomysium
7 Extrafusal fibers
8 Capsule of muscle spindle
9 Nerve fibers with Schwann cells
10 Intrafusal fibers
11 Perimysium
12 Arteriole

FIGURE 6.4 ■ Skeletal muscle with muscle spindle (transverse section). Frozen section stained with modified Van Gieson method (hematoxylin, picric acid-ponceau stain). Left, medium magnification; right, high magnification. (Tissue samples provided by Dr. Mark De Santis, WWAMI Medical Program, University of Idaho, Moscow, Idaho.)

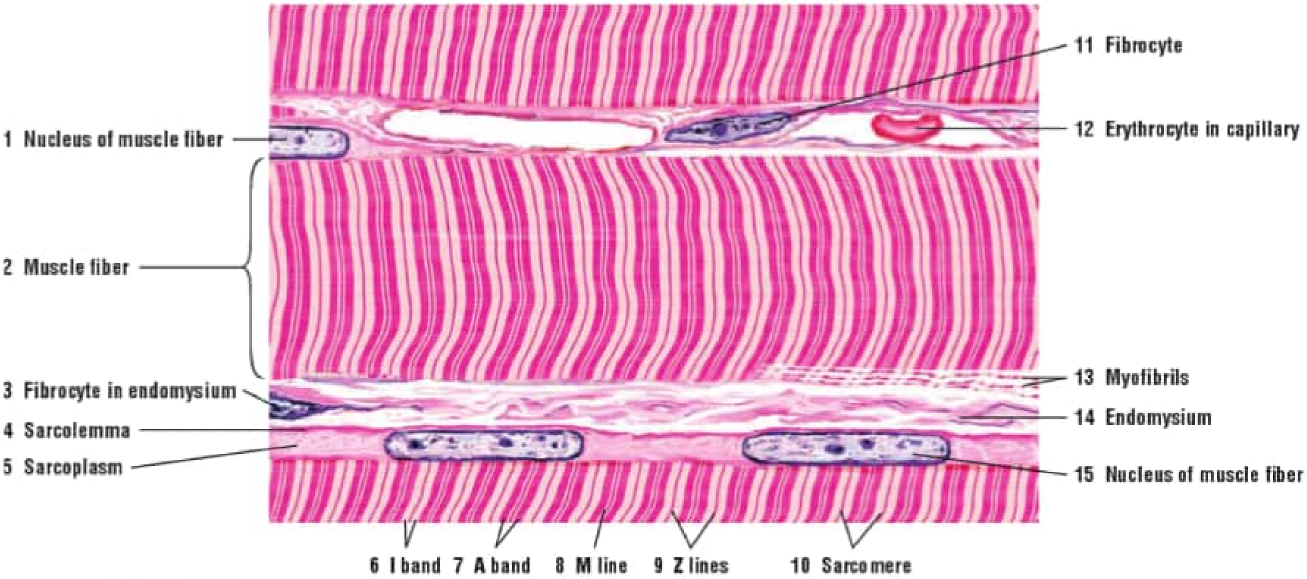

1 Nucleus of muscle fiber
2 Muscle fiber
3 Fibrocyte in endomysium
4 Sarcolemma
5 Sarcoplasm
6 I band
7 A band
8 M line
9 Z lines
10 Sarcomere
11 Fibrocyte
12 Erythrocyte in capillary
13 Myofibrils
14 Endomysium
15 Nucleus of muscle fiber

FIGURE 6.5 ■ Skeletal muscle fibers (longitudinal section). Stain: hematoxylin and eosin. Plastic section. High magnification.

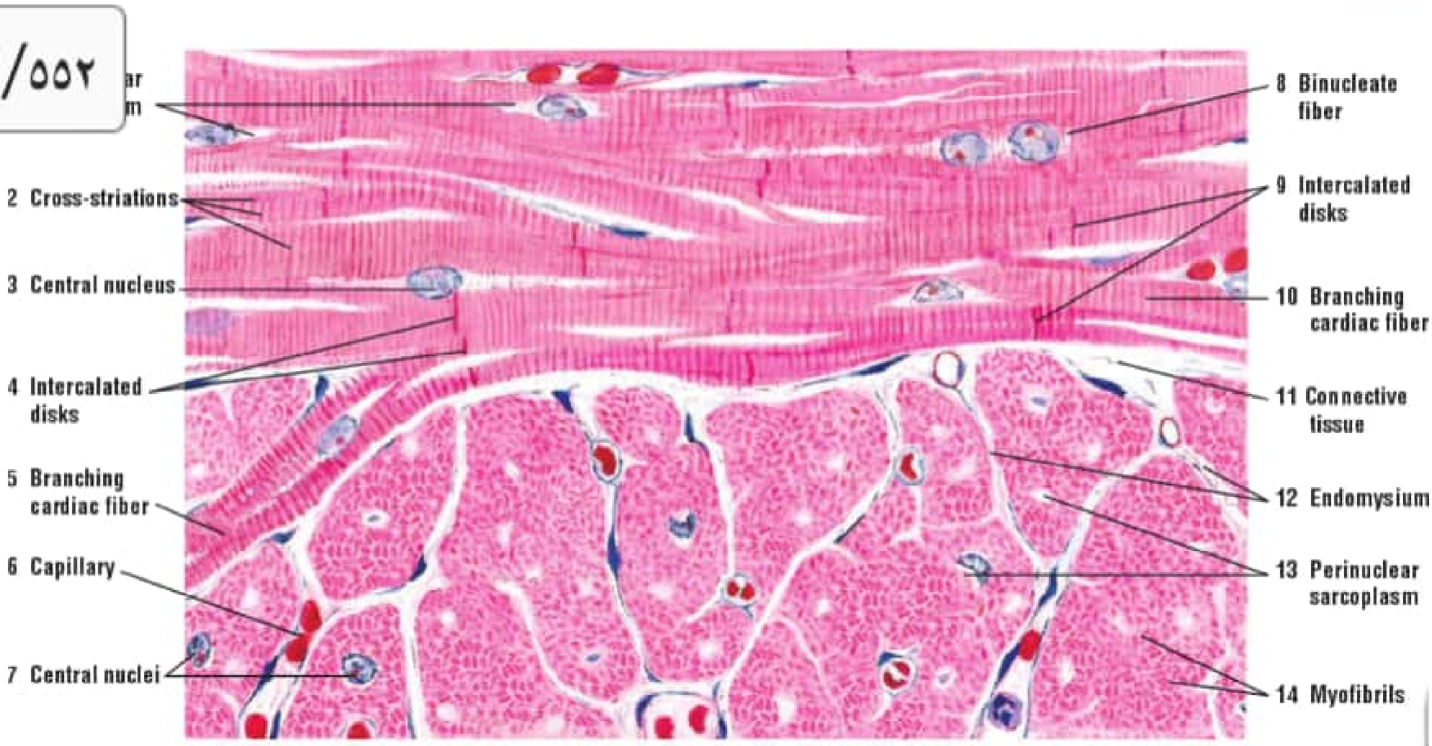

ar
m
2 Cross-striations
3 Central nucleus
4 Intercalated disks
5 Branching cardiac fiber
6 Capillary
7 Central nuclei
8 Binucleate fiber
9 Intercalated disks
10 Branching cardiac fiber
11 Connective tissue
12 Endomysium
13 Perinuclear sarcoplasm
14 Myofibrils

FIGURE 6.8 ■ Longitudinal and transverse sections of cardiac muscle. Stain: hematoxylin and eosin. High magnification.

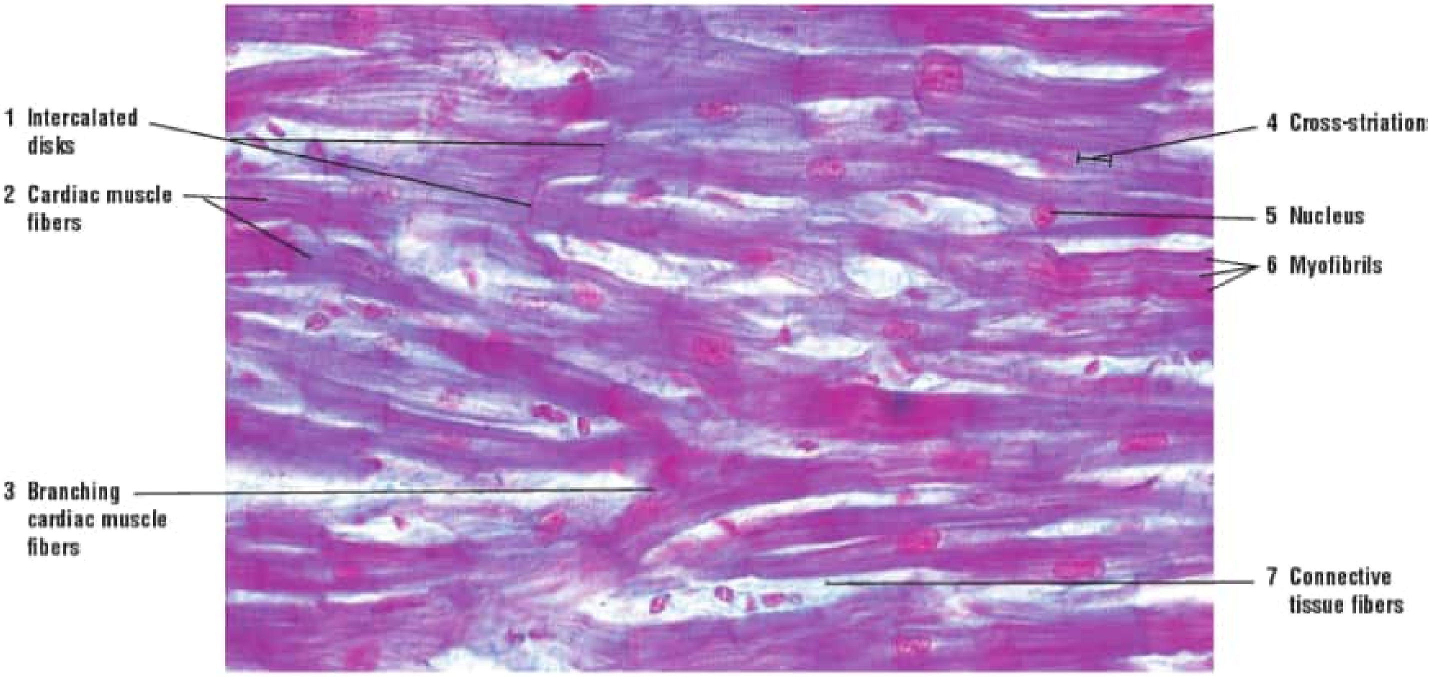

1 Intercalated disks
2 Cardiac muscle fibers
3 Branching cardiac muscle fibers
4 Cross-striation
5 Nucleus
6 Myofibrils
7 Connective tissue fibers

FIGURE 6.9 ■ Cardiac muscle (longitudinal section). Stain: Masson's trichrome. ×130.

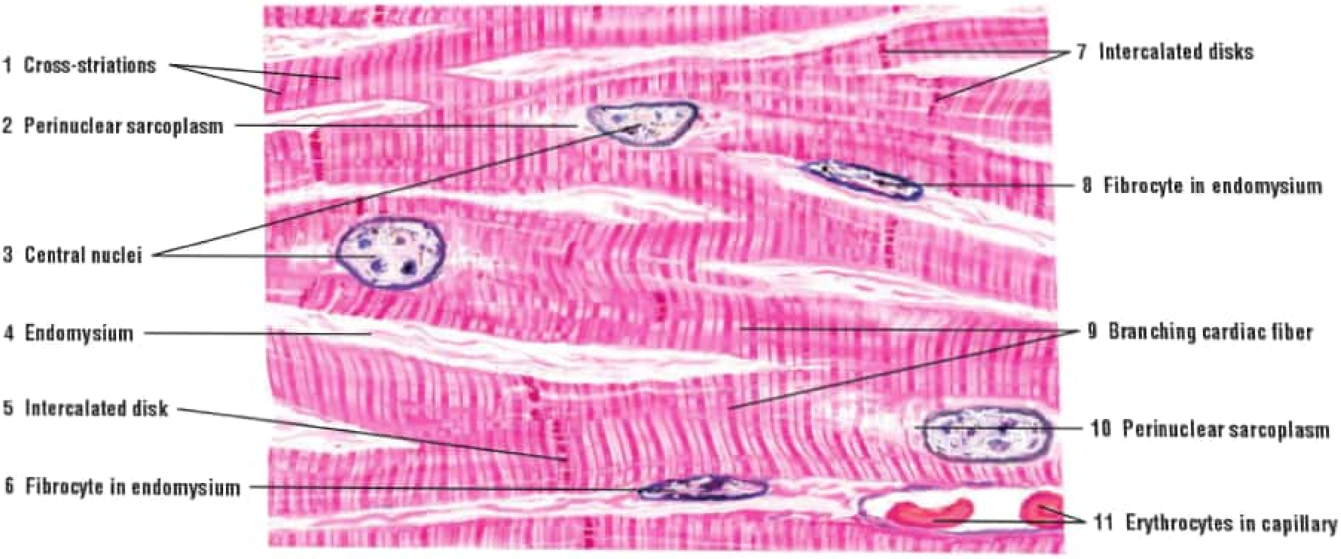

1 Cross-striations
2 Perinuclear sarcoplasm
3 Central nuclei
4 Endomysium
5 Intercalated disk
6 Fibrocyte in endomysium
7 Intercalated disks
8 Fibrocyte in endomysium
9 Branching cardiac fiber
10 Perinuclear sarcoplasm
11 Erythrocytes in capillary

FIGURE 6.10 ■ Cardiac muscle in longitudinal section. Stain: hematoxylin and eosin. High magnification.

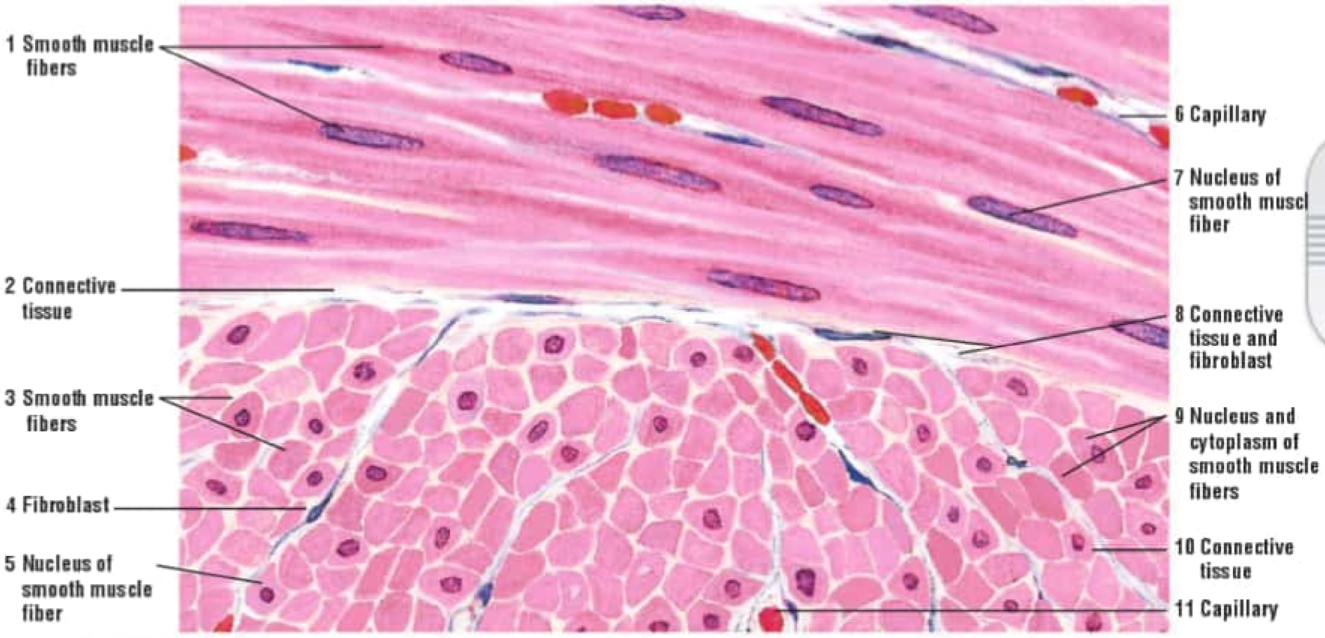

1 Smooth muscle fibers
2 Connective tissue
3 Smooth muscle fibers
4 Fibroblast
5 Nucleus of smooth muscle fiber
6 Capillary
7 Nucleus of smooth muscl fiber
8 Connective tissue and fibroblast
9 Nucleus and cytoplasm of smooth muscle fibers
10 Connective tissue
11 Capillary

FIGURE 6.11 ■ Longitudinal and transverse sections of smooth muscle in the wall of the small intestine. Stain: hematoxylin and eosin. High magnification.

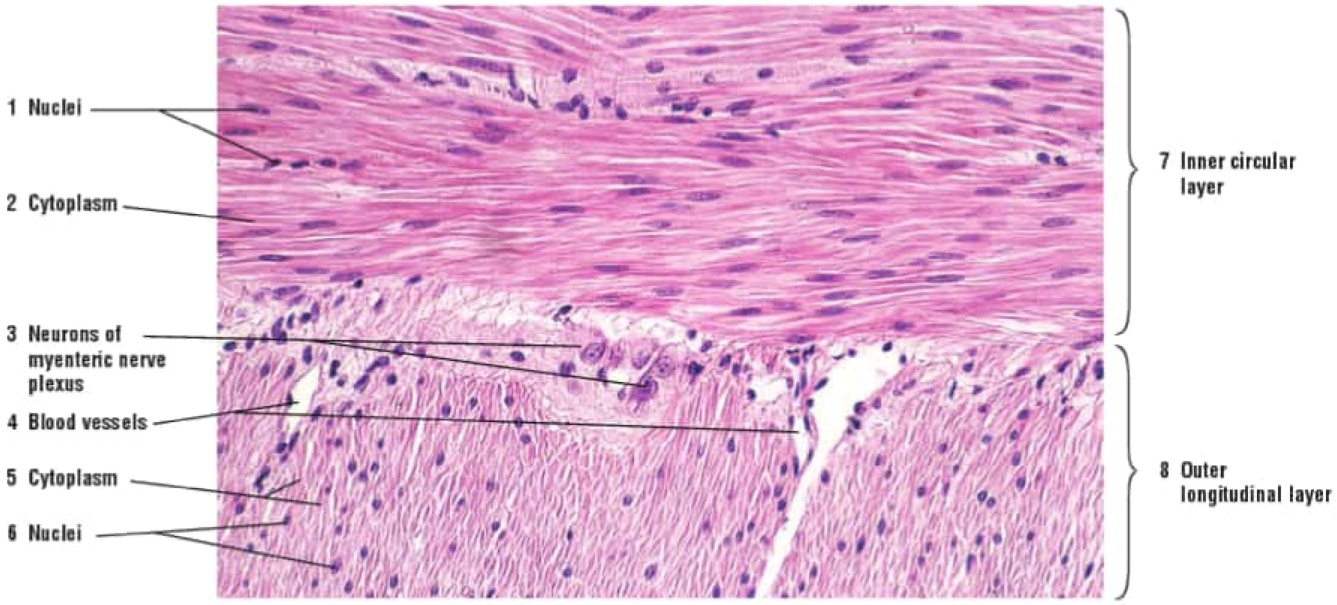

1 Nuclei
2 Cytoplasm
3 Neurons of myenteric nerve plexus
4 Blood vessels
5 Cytoplasm
6 Nuclei
7 Inner circular layer
8 Outer longitudinal layer

FIGURE 6.12 ■ Smooth muscle: wall of the small intestine (transverse and longitudinal section). Stain: hematoxylin and eosin. ×80.

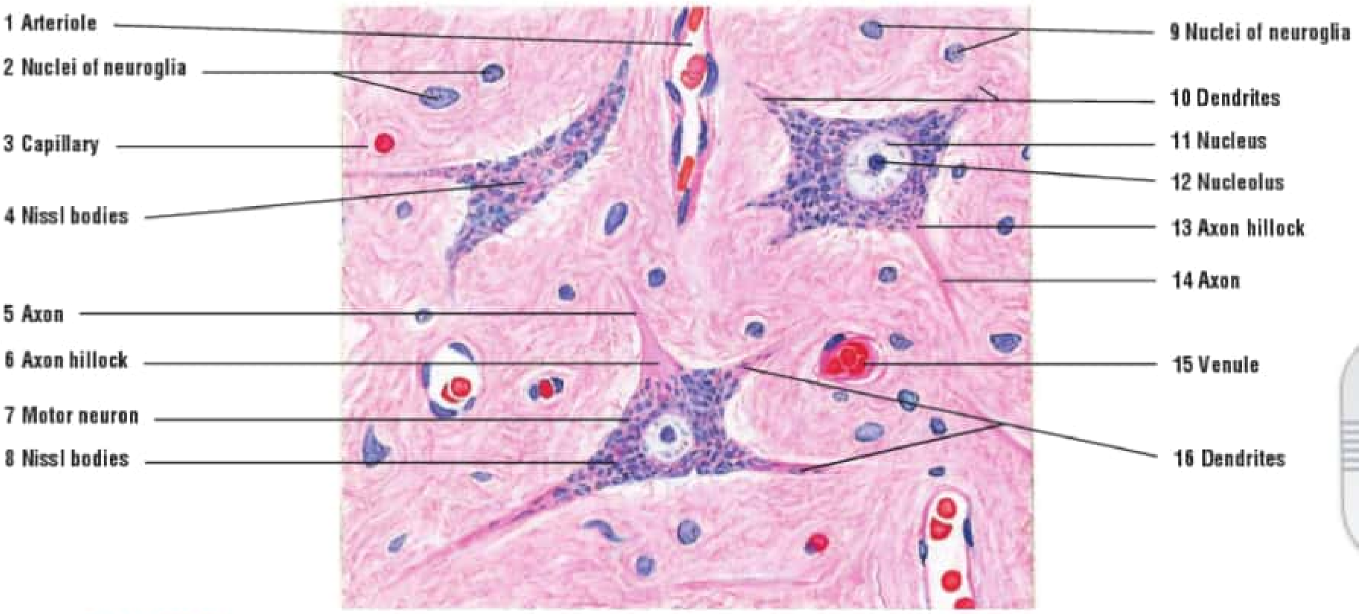

1 Arteriole
2 Nuclei of neuroglia
3 Capillary
4 Nissl bodies
5 Axon
6 Axon hillock
7 Motor neuron
8 Nissl bodies
9 Nuclei of neuroglia
10 Dendrites
11 Nucleus
12 Nucleolus
13 Axon hillock
14 Axon
15 Venule
16 Dendrites

FIGURE 7.5 ■ Motor neurons: anterior horn of spinal cord. Stain: hematoxylin and eosin. High magnification.

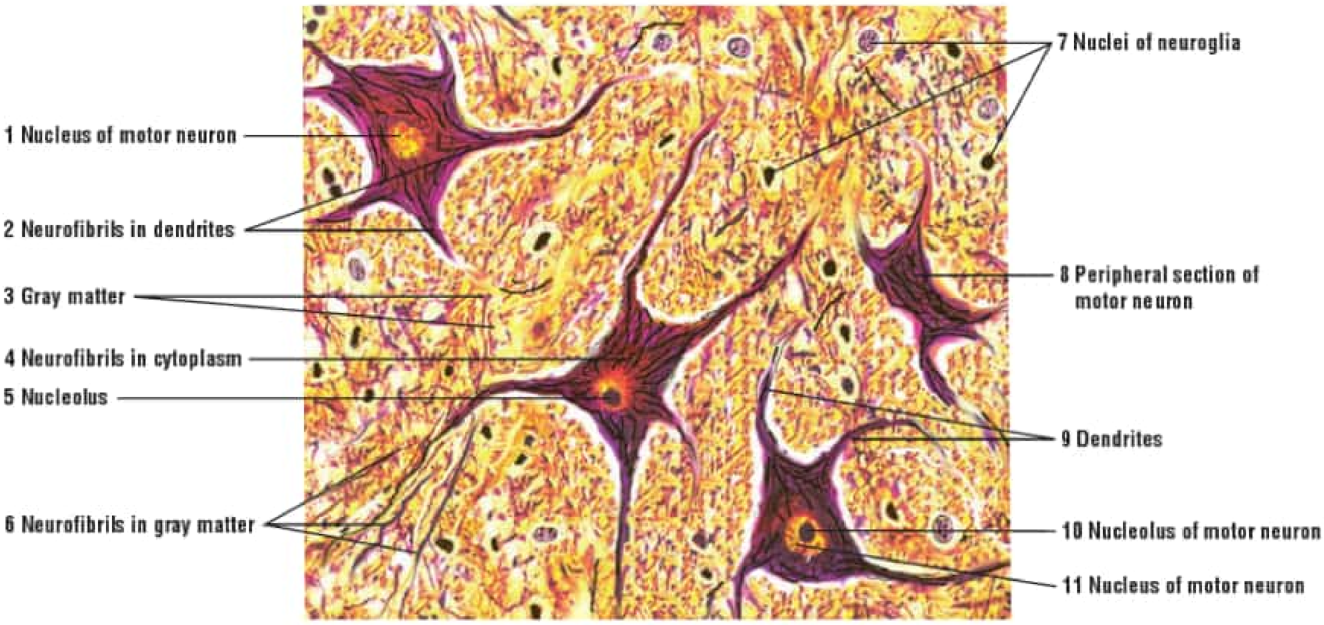

1 Nucleus of motor neuron
2 Neurofibrils in dendrites
3 Gray matter
4 Neurofibrils in cytoplasm
5 Nucleolus
6 Neurofibrils in gray matter
7 Nuclei of neuroglia
8 Peripheral section of motor neuron
9 Dendrites
10 Nucleolus of motor neuron
11 Nucleus of motor neuron

FIGURE 7.6 ■ Neurofibrils and motor neurons in the gray matter of the anterior horn of the spinal cord. Stain: silver impregnation (Cajal's method). High magnification.

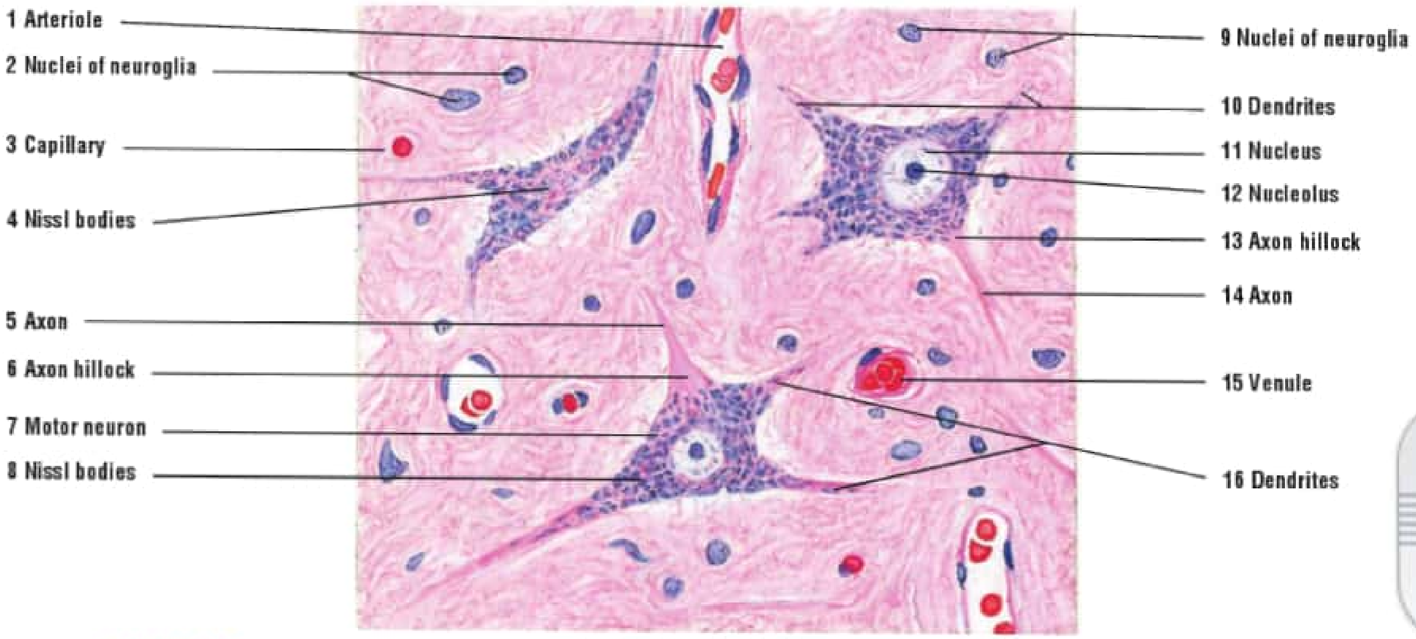

1 Arteriole
2 Nuclei of neuroglia
3 Capillary
4 Nissl bodies
5 Axon
6 Axon hillock
7 Motor neuron
8 Nissl bodies
9 Nuclei of neuroglia
10 Dendrites
11 Nucleus
12 Nucleolus
13 Axon hillock
14 Axon
15 Venule
16 Dendrites

FIGURE 7.5 ■ Motor neurons: anterior horn of spinal cord. Stain: hematoxylin and eosin. High magnification.

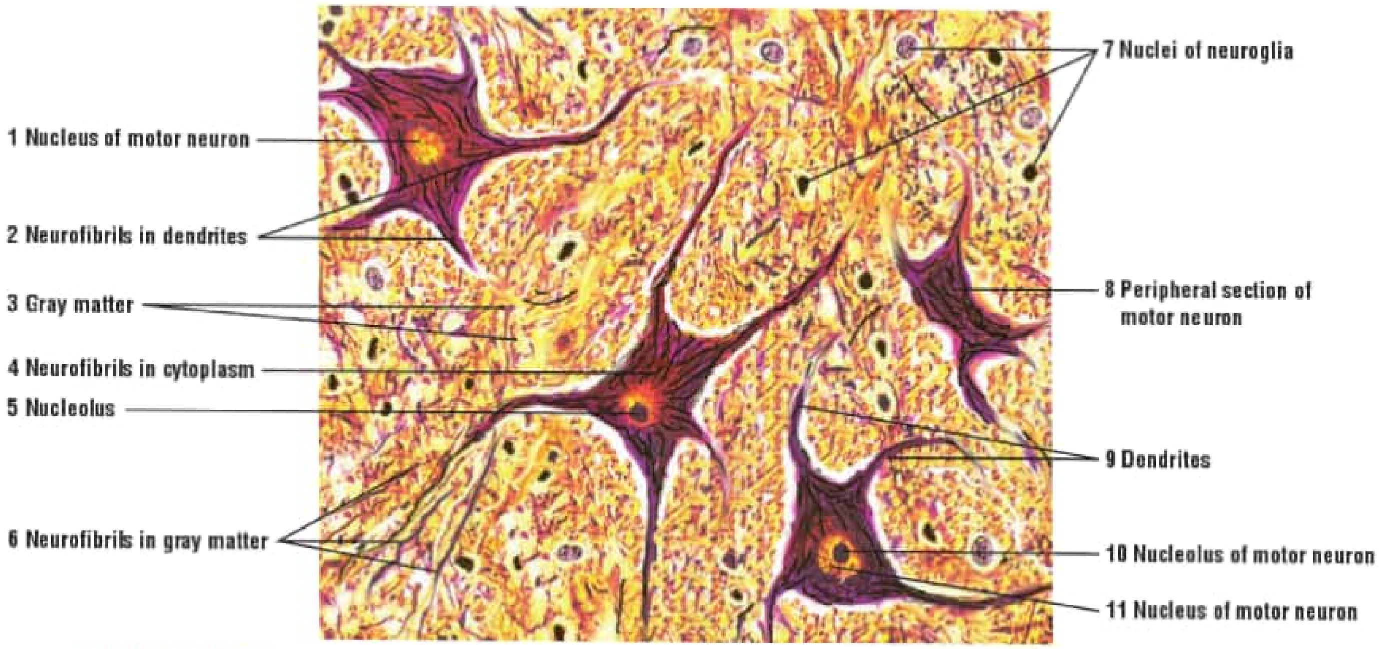

1 Nucleus of motor neuron
2 Neurofibrils in dendrites
3 Gray matter
4 Neurofibrils in cytoplasm
5 Nucleolus
6 Neurofibrils in gray matter
7 Nuclei of neuroglia
8 Peripheral section of motor neuron
9 Dendrites
10 Nucleolus of motor neuron
11 Nucleus of motor neuron

FIGURE 7.6 ■ Neurofibrils and motor neurons in the gray matter of the anterior horn of the spinal cord. Stain: silver impregnation (Cajal's method). High magnification.

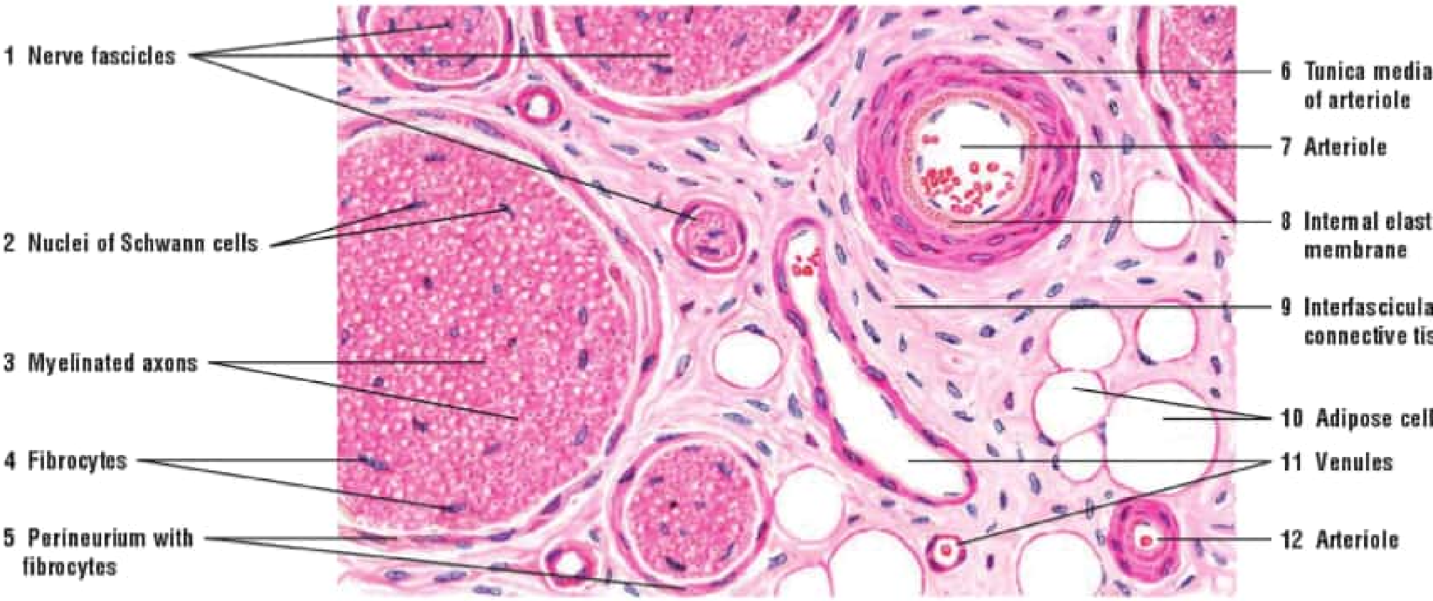

1 Nerve fascicles
2 Nuclei of Schwann cells
3 Myelinated axons
4 Fibrocytes
5 Perineurium with fibrocytes
6 Tunica media of arteriole
7 Arteriole
8 Internal elast membrane
9 Interfascicula connective tis
10 Adipose cell
11 Venules
12 Arteriole

FIGURE 7.15 ■ Peripheral nerves and blood vessels (transverse section). Stain: hematoxylin and eosin. Medium magnification.

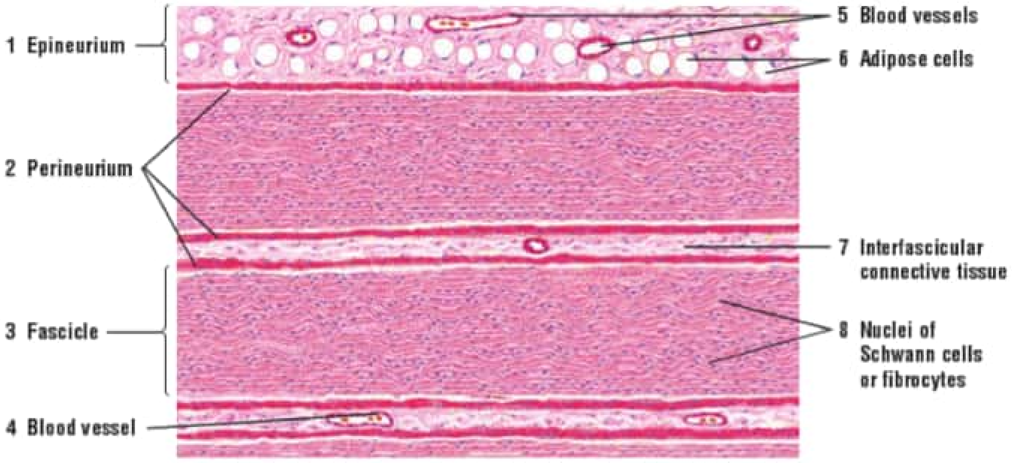

1 Epineurium
2 Perineurium
3 Fascicle
4 Blood vessel
5 Blood vessels
6 Adipose cells
7 Interfascicular connective tissue
8 Nuclei of Schwann cells or fibrocytes

FIGURE 7.17 ■ Sciatic nerve (longitudinal section). Stain: hematoxylin and eosin. Low magnification.

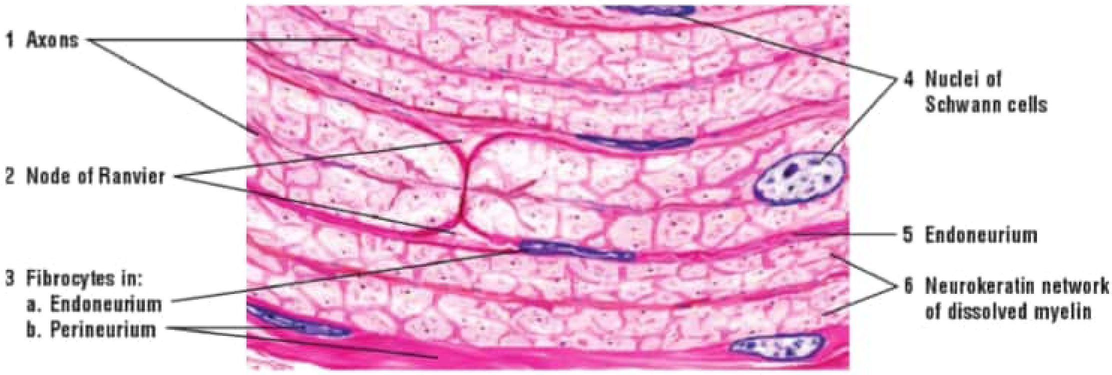

1 Axons
2 Node of Ranvier
3 Fibrocytes in:
a. Endoneurium
b. Perineurium
4 Nuclei of Schwann cells
5 Endoneurium
6 Neurokeratin network of dissolved myelin

FIGURE 7.18 ■ Sciatic nerve (longitudinal section). Stain: hematoxylin and eosin. High magnification (oil immersion).

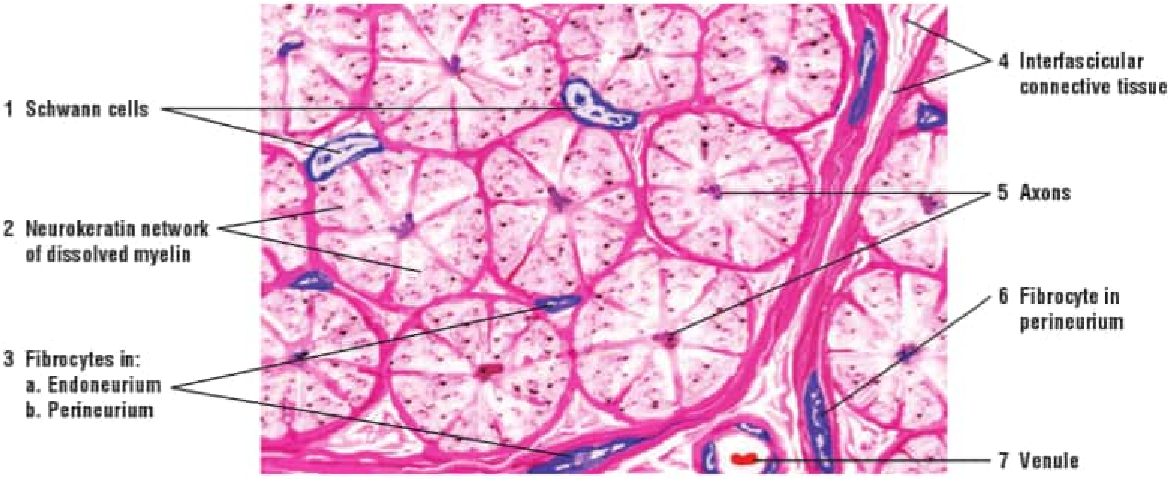

1 Schwann cells
2 Neurokeratin network of dissolved myelin
3 Fibrocytes in:
a. Endoneurium
b. Perineurium
4 Interfascicular connective tissue
5 Axons
6 Fibrocyte in perineurium
7 Venule

FIGURE 7.19 ■ Sciatic nerve (transverse section). Stain: hematoxylin and eosin. High magnification (oil immersion).

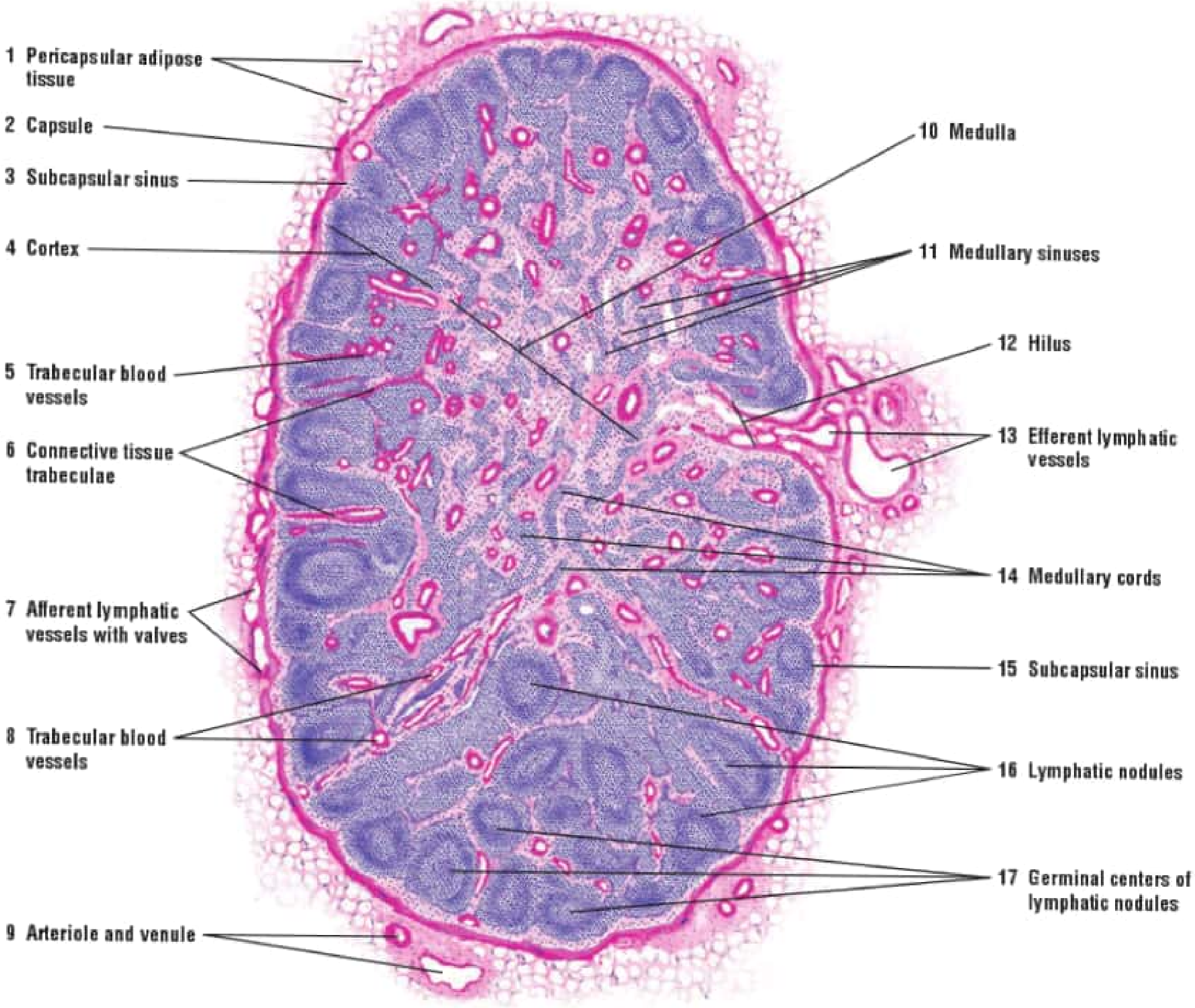

1 Pericapsular adipose tissue
2 Capsule
3 Subcapsular sinus
4 Cortex
5 Trabecular blood vessels
6 Connective tissue trabeculae
7 Afferent lymphatic vessels with valves
8 Trabecular blood vessels
9 Arteriole and venule
10 Medulla
11 Medullary sinuses
12 Hilus
13 Efferent lymphatic vessels
14 Medullary cords
15 Subcapsular sinus
16 Lymphatic nodules
17 Germinal centers of lymphatic nodules

FIGURE 9.1 ■ Lymph node (panoramic view). Stain: hematoxylin and eosin. Medium magnification.

tex. Here, the postcapillary venules exhibit tall cuboidal or columnar endothelium containing specialized **lymphocyte-homing receptors.** Because these venules are lined by taller endothelium, they are called **high endothelial venules.** The circulating lymphocytes recognize the receptors in the endothelial cells and leave the bloodstream to enter the lymph node. Both B and T cells leave the bloodstream via the high endothelial venules. These specialized venules are also present in other lymphoid organs, such as Peyer's patches in the small intestine, tonsils, appendix, and cortex of the thymus; high endothelial venules are absent from the spleen.

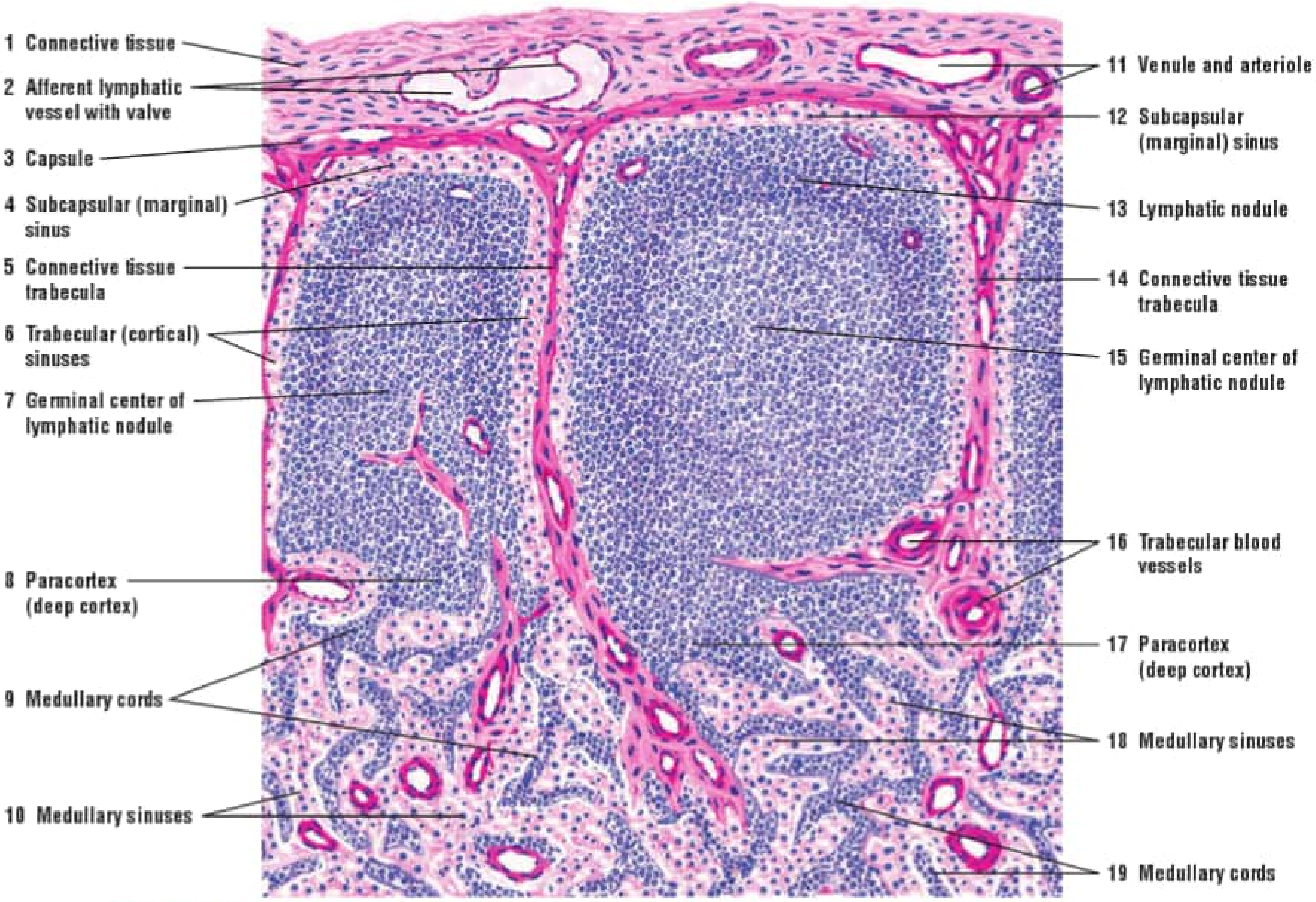

1 Connective tissue
2 Afferent lymphatic vessel with valve
3 Capsule
4 Subcapsular (marginal) sinus
5 Connective tissue trabecula
6 Trabecular (cortical) sinuses
7 Germinal center of lymphatic nodule
8 Paracortex (deep cortex)
9 Medullary cords
10 Medullary sinuses
11 Venule and arteriole
12 Subcapsular (marginal) sinus
13 Lymphatic nodule
14 Connective tissue trabecula
15 Germinal center of lymphatic nodule
16 Trabecular blood vessels
17 Paracortex (deep cortex)
18 Medullary sinuses
19 Medullary cords

FIGURE 9.2 ■ Lymph node: capsule, cortex, and medulla (sectional view). Stain: hematoxylin and eosin. Medium magnification.

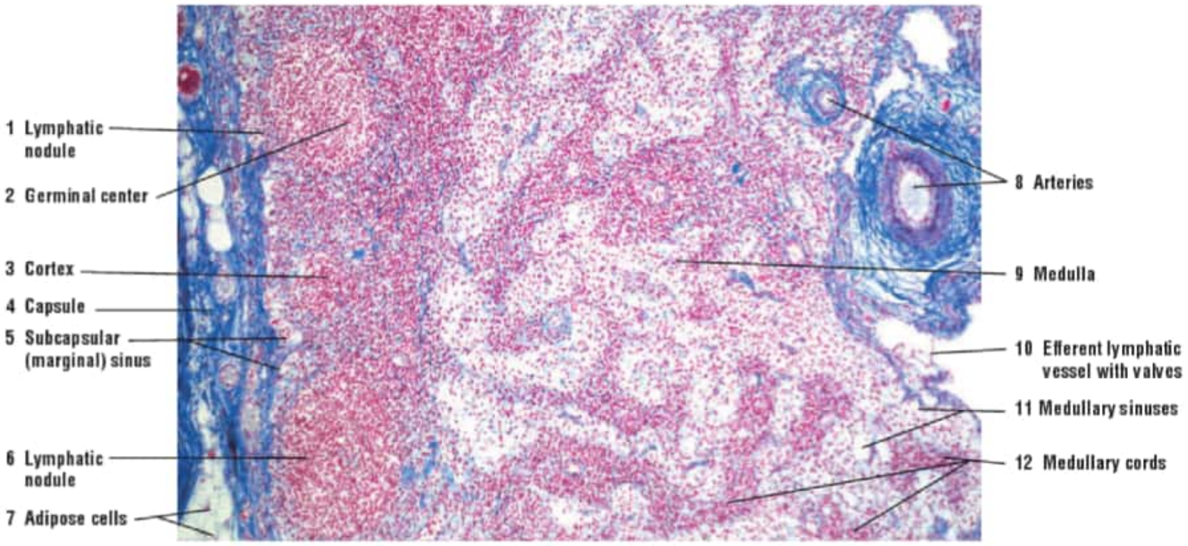

1 Lymphatic nodule
2 Germinal center
3 Cortex
4 Capsule
5 Subcapsular (marginal) sinus
6 Lymphatic nodule
7 Adipose cells
8 Arteries
9 Medulla
10 Efferent lymphatic vessel with valves
11 Medullary sinuses
12 Medullary cords

FIGURE 9.3 ■ Cortex and medulla of a lymph node. Stain: Mallory-azan. ×25.

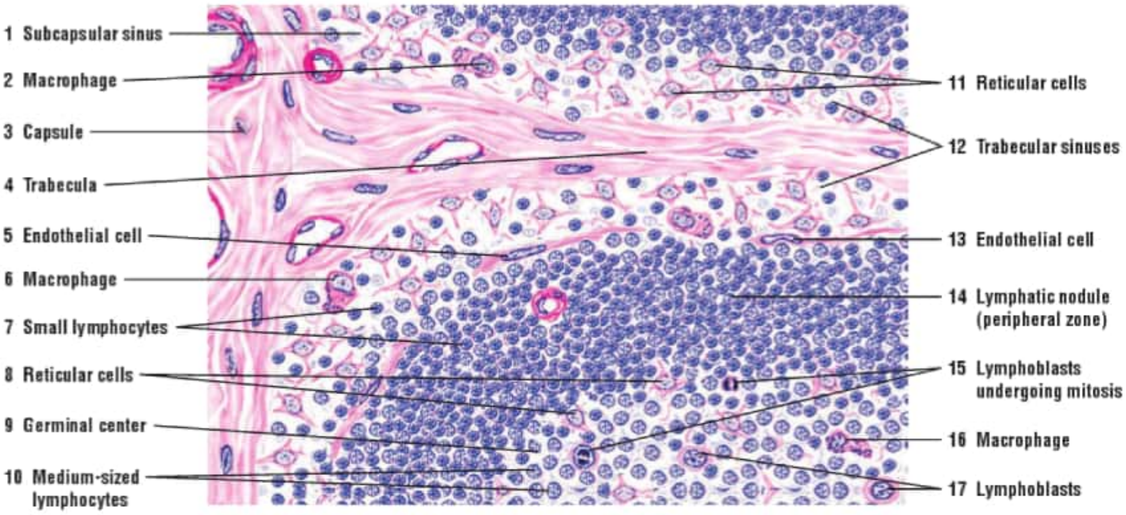

1 Subcapsular sinus
2 Macrophage
3 Capsule
4 Trabecula
5 Endothelial cell
6 Macrophage
7 Small lymphocytes
8 Reticular cells
9 Germinal center
10 Medium-sized lymphocytes
11 Reticular cells
12 Trabecular sinuses
13 Endothelial cell
14 Lymphatic nodule (peripheral zone)
15 Lymphoblasts undergoing mitosis
16 Macrophage
17 Lymphoblasts

FIGURE 9.4 ■ Lymph node: subcortical sinus, trabecular sinus, reticular cells, and lymphatic nodule. Stain: hematoxylin and eosin. High magnification.

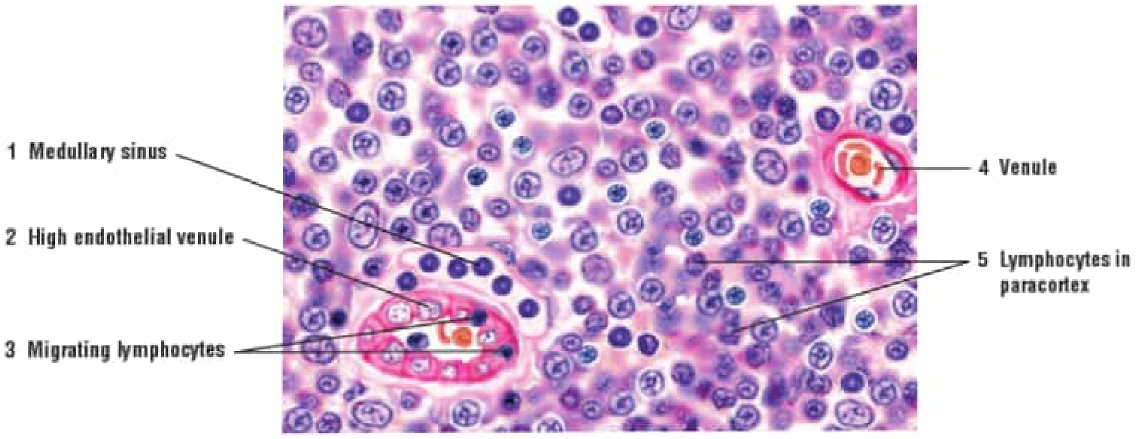

1 Medullary sinus
2 High endothelial venule
3 Migrating lymphocytes
4 Venule
5 Lymphocytes in paracortex

FIGURE 9.5 ■ Lymph node: high endothelial venule in the paracortex (deep cortex) of a lymph node. Stain: hematoxylin and eosin. High magnification.

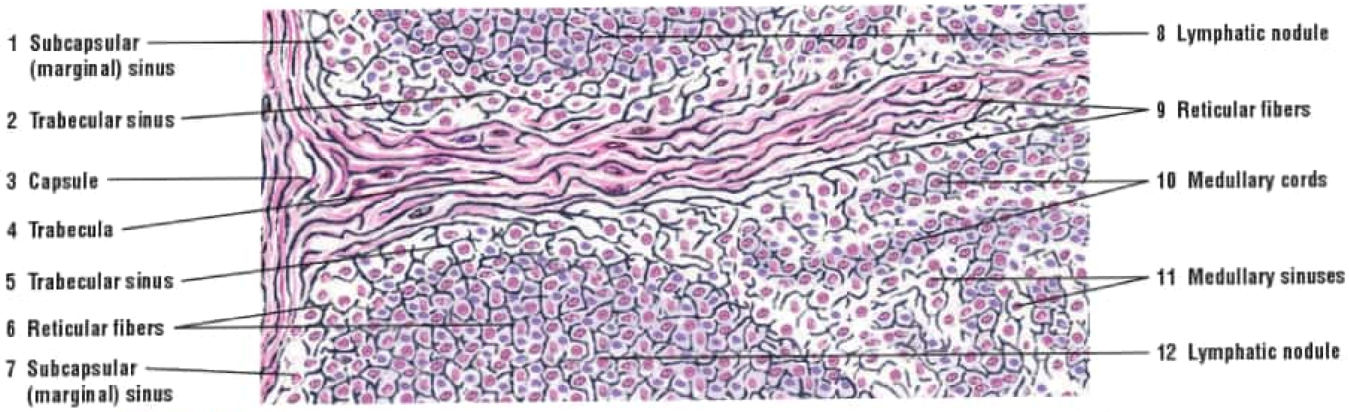

1 Subcapsular (marginal) sinus
2 Trabecular sinus
3 Capsule
4 Trabecula
5 Trabecular sinus
6 Reticular fibers
7 Subcapsular (marginal) sinus
8 Lymphatic nodule
9 Reticular fibers
10 Medullary cords
11 Medullary sinuses
12 Lymphatic nodule

FIGURE 9.6 ■ Lymph node: subcapsular sinus, trabecular sinus, and supporting reticular fibers. Stain: Silver stain. Medium magnification.

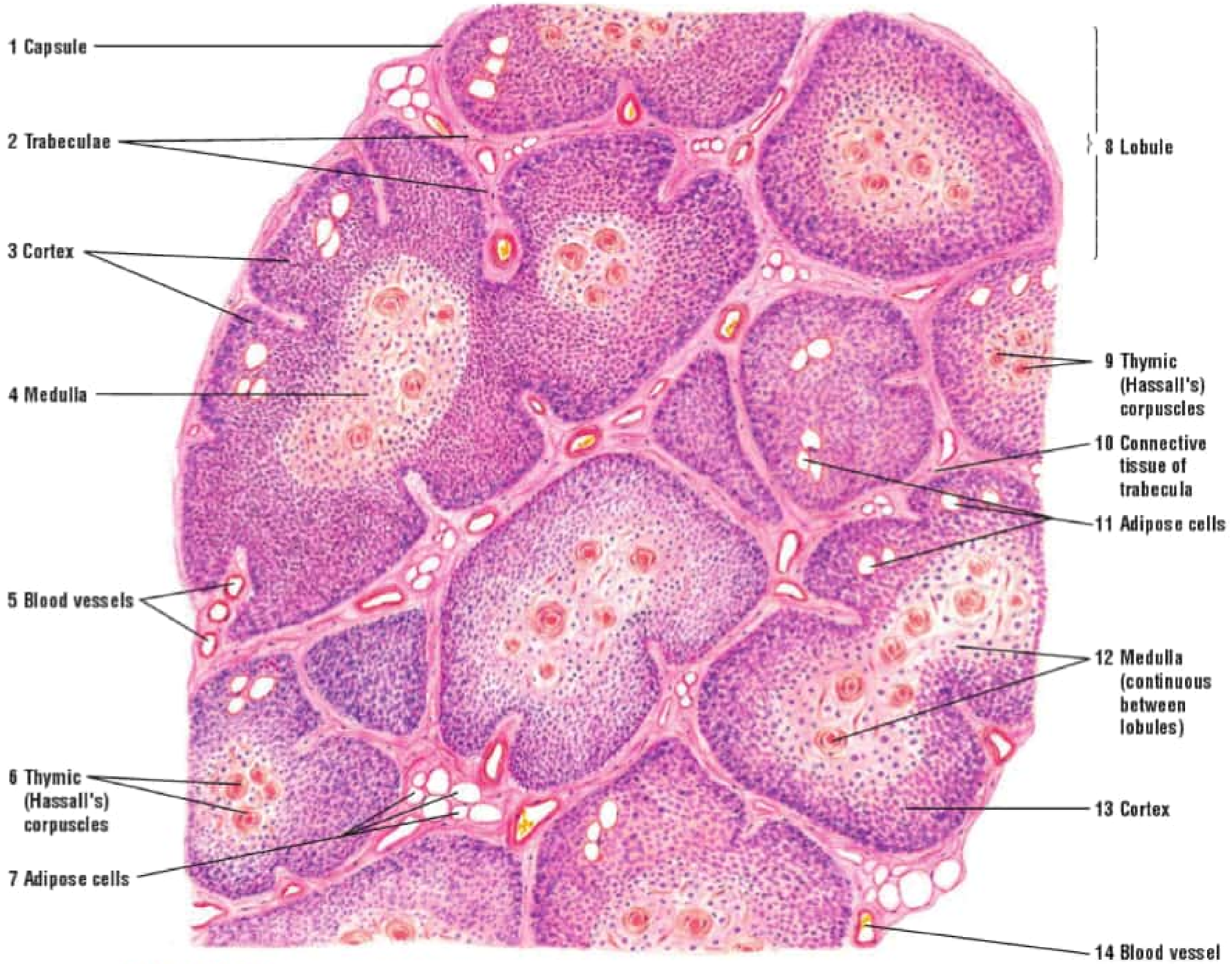

1 Capsule
2 Trabeculae
3 Cortex
4 Medulla
5 Blood vessels
6 Thymic (Hassall's) corpuscles
7 Adipose cells
8 Lobule
9 Thymic (Hassall's) corpuscles
10 Connective tissue of trabecula
11 Adipose cells
12 Medulla (continuous between lobules)
13 Cortex
14 Blood vessel

FIGURE 9.7 ■ Thymus gland (panoramic view). Stain: hematoxylin and eosin. Low magnification.

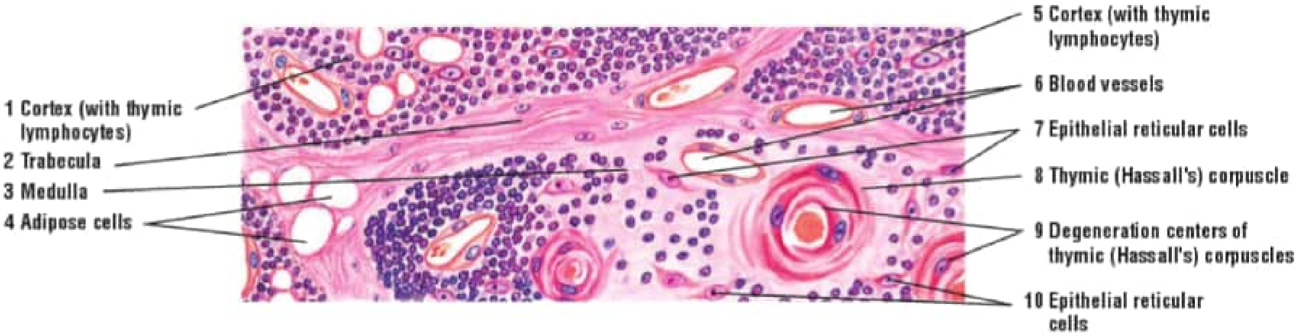

1 Cortex (with thymic lymphocytes)
2 Trabecula
3 Medulla
4 Adipose cells
5 Cortex (with thymic lymphocytes)
6 Blood vessels
7 Epithelial reticular cells
8 Thymic (Hassall's) corpuscle
9 Degeneration centers of thymic (Hassall's) corpuscles
10 Epithelial reticular cells

FIGURE 9.8 ■ Thymus gland (sectional view). Stain: hematoxylin and eosin. High magnification.

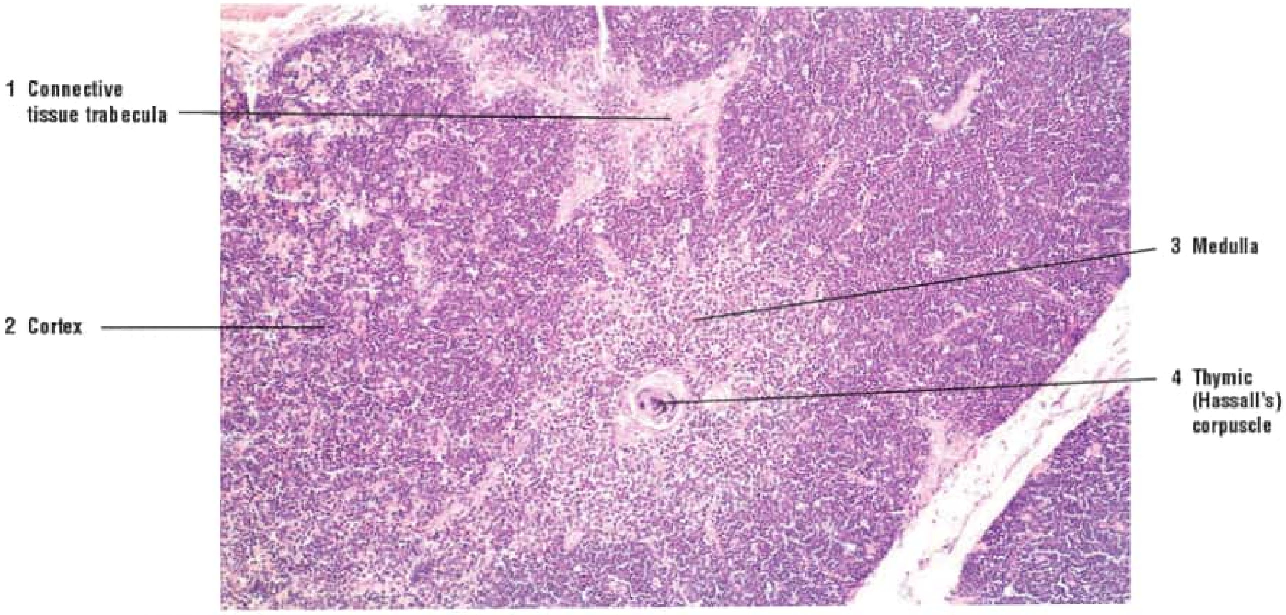

1 Connective tissue trabecula
2 Cortex
3 Medulla
4 Thymic (Hassall's) corpuscle

FIGURE 9.9 ■ Cortex and medulla of a thymus gland. Stain: hematoxylin and eosin. ×30.

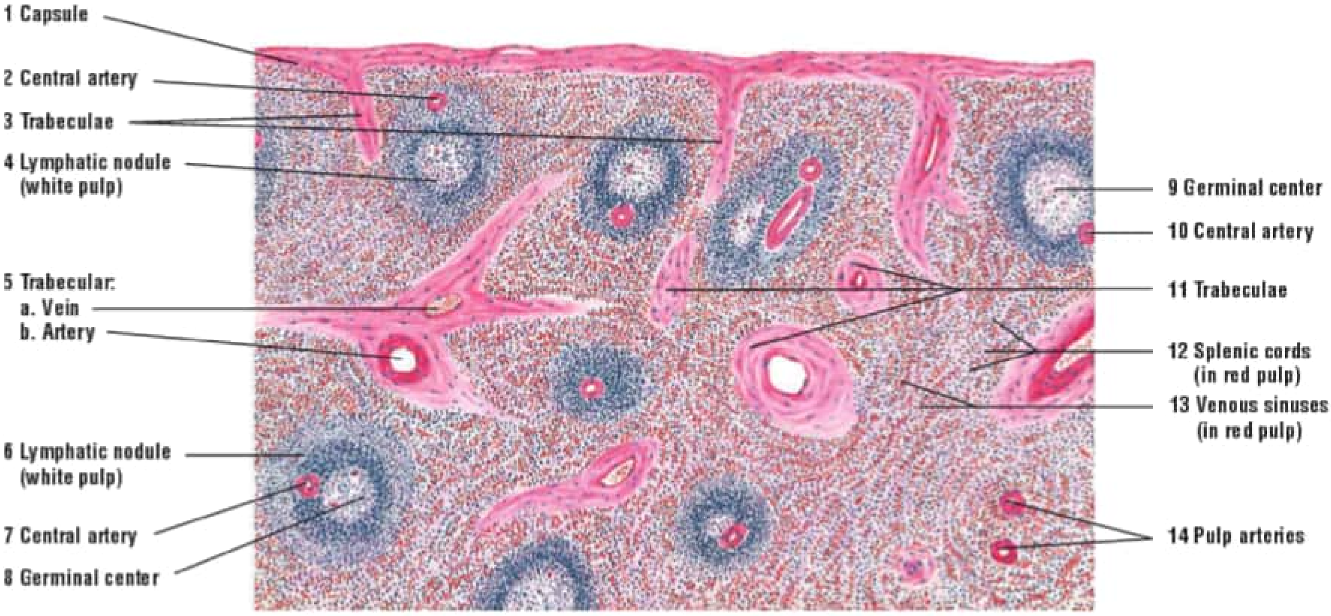

1 Capsule
2 Central artery
3 Trabeculae
4 Lymphatic nodule (white pulp)
5 Trabecular:
a. Vein
b. Artery
6 Lymphatic nodule (white pulp)
7 Central artery
8 Germinal center
9 Germinal center
10 Central artery
11 Trabeculae
12 Splenic cords (in red pulp)
13 Venous sinuses (in red pulp)
14 Pulp arteries

FIGURE 9.10 ■ Spleen (panoramic view). Stain: hematoxylin and eosin. Low magnification.

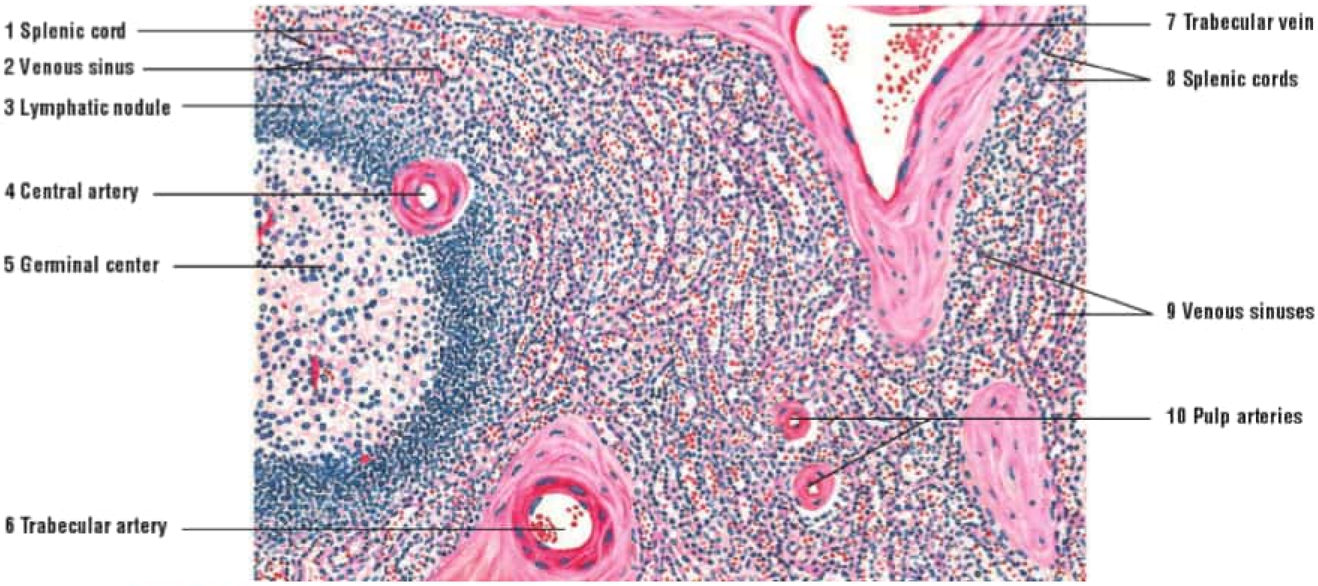

1 Splenic cord
2 Venous sinus
3 Lymphatic nodule
4 Central artery
5 Germinal center
6 Trabecular artery
7 Trabecular vein
8 Splenic cords
9 Venous sinuses
10 Pulp arteries

FIGURE 9.11 ■ Spleen: red and white pulp. Stain: hematoxylin and eosin. Medium magnification.

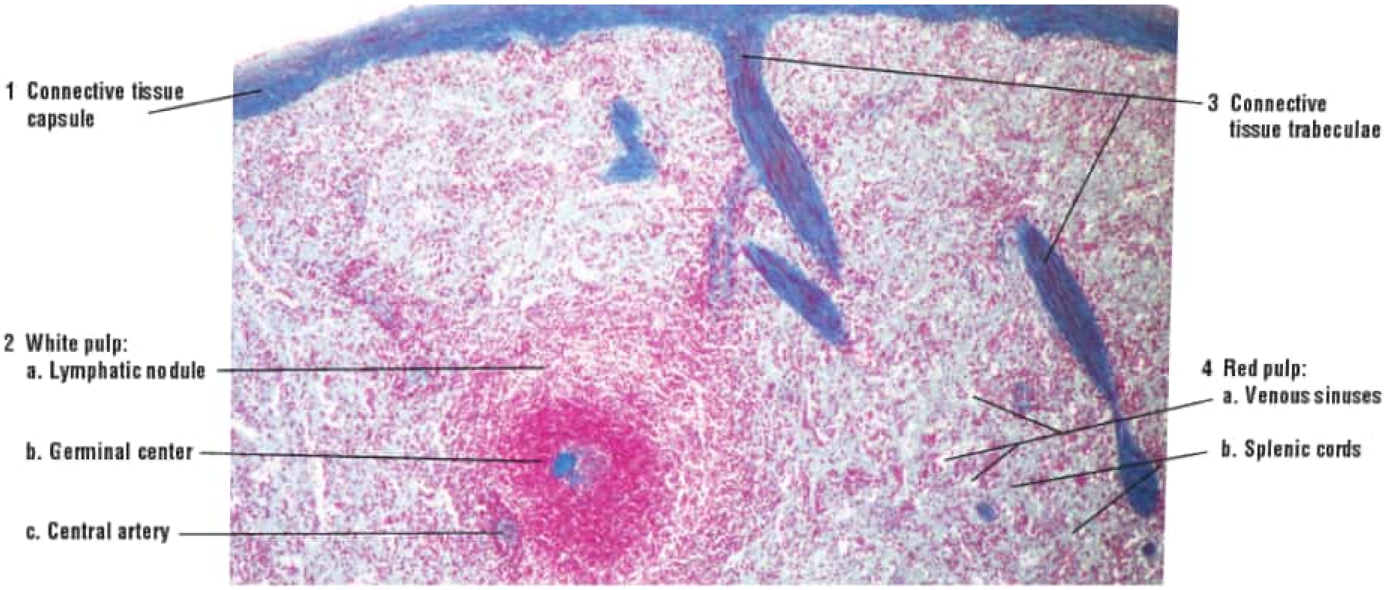

1 Connective tissue capsule
2 White pulp:
a. Lymphatic nodule
b. Germinal center
c. Central artery
3 Connective tissue trabeculae
4 Red pulp:
a. Venous sinuses
b. Splenic cords

FIGURE 9.12 ■ Red and white pulp of the spleen. Stain: Mallory-azan. ×21.

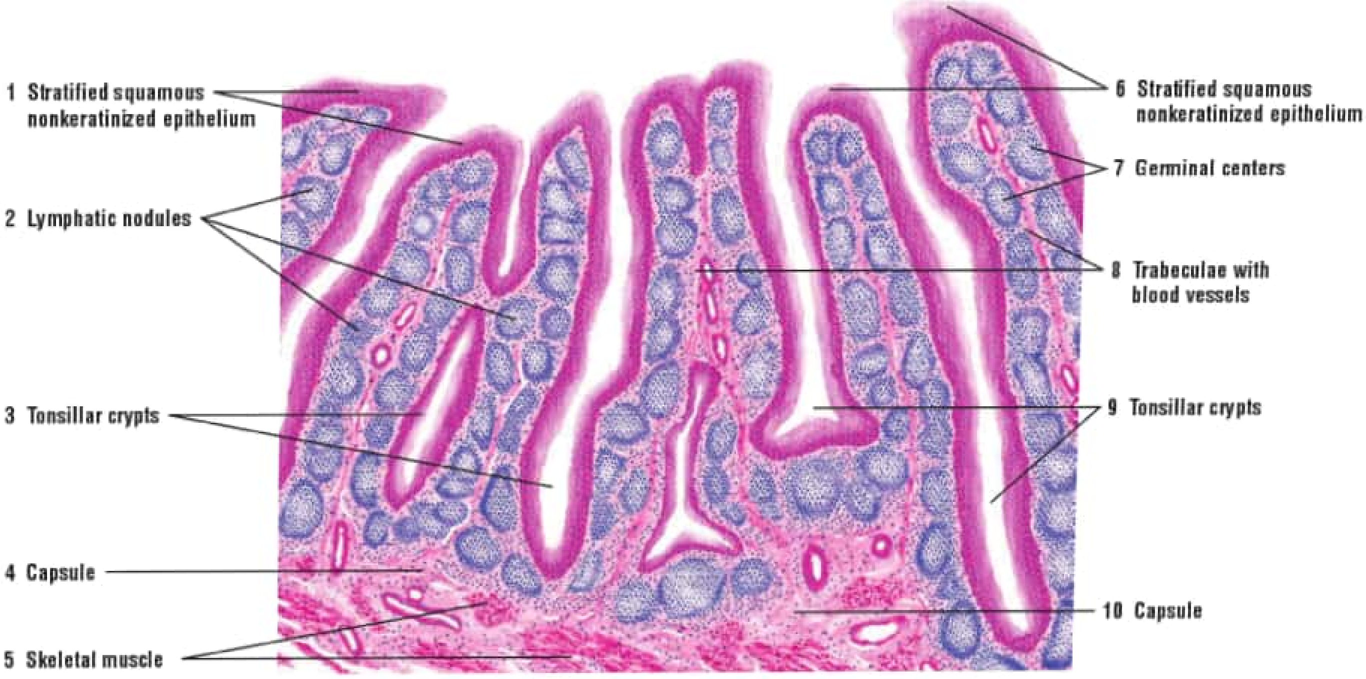

1 Stratified squamous nonkeratinized epithelium
2 Lymphatic nodules
3 Tonsillar crypts
4 Capsule
5 Skeletal muscle
6 Stratified squamous nonkeratinized epithelium
7 Germinal centers
8 Trabeculae with blood vessels
9 Tonsillar crypts
10 Capsule

FIGURE 9.13 ■ Palatine tonsil. Stain: hematoxylin and eosin. Low magnification.

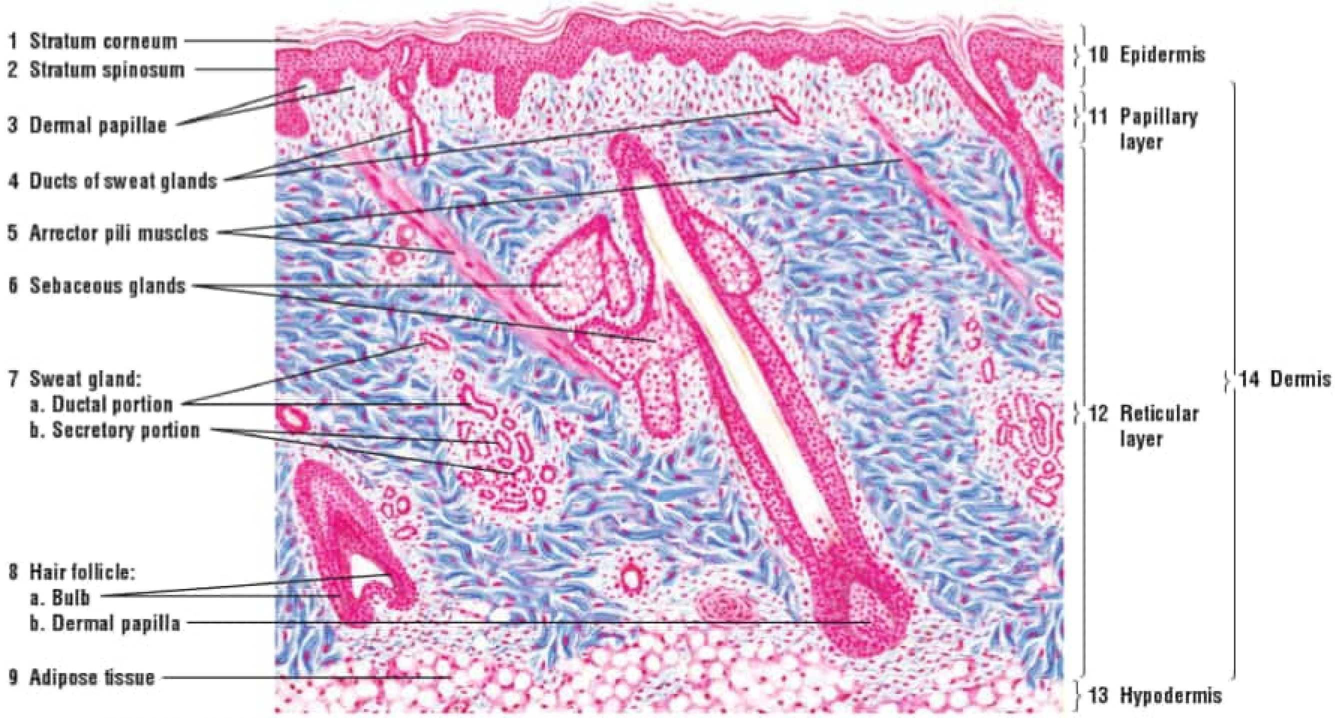

1 Stratum corneum
2 Stratum spinosum
3 Dermal papillae
4 Ducts of sweat glands
5 Arrector pili muscles
6 Sebaceous glands
7 Sweat gland:
a. Ductal portion
b. Secretory portion
8 Hair follicle:
a. Bulb
b. Dermal papilla
9 Adipose tissue
10 Epidermis
11 Papillary layer
12 Reticular layer
13 Hypodermis
14 Dermis

FIGURE 10.1 ■ Thin skin: epidermis and the contents of the dermis. Stain: Masson's trichrome (blue stain). Low magnification.

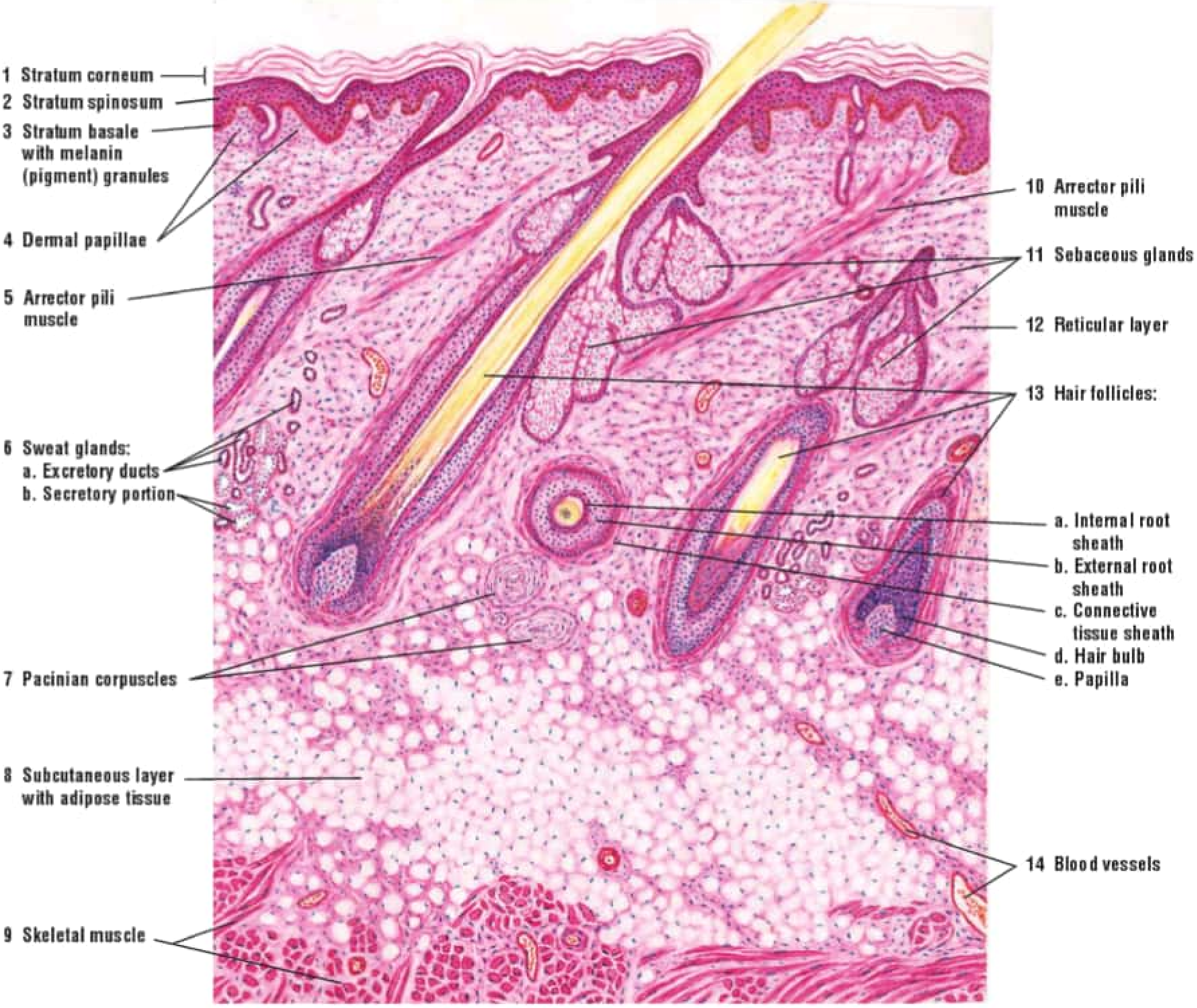

1 Stratum corneum
2 Stratum spinosum
3 Stratum basale with melanin (pigment) granules
4 Dermal papillae
5 Arrector pili muscle
6 Sweat glands:
a. Excretory ducts
b. Secretory portion
7 Pacinian corpuscles
8 Subcutaneous layer with adipose tissue
9 Skeletal muscle
10 Arrector pili muscle
11 Sebaceous glands
12 Reticular layer
13 Hair follicles:
a. Internal root sheath
b. External root sheath
c. Connective tissue sheath
d. Hair bulb
e. Papilla
14 Blood vessels

FIGURE 10.2 ■ Skin: epidermis, dermis, and hypodermis in the scalp. Stain: hematoxylin and eosin. Low magnification.

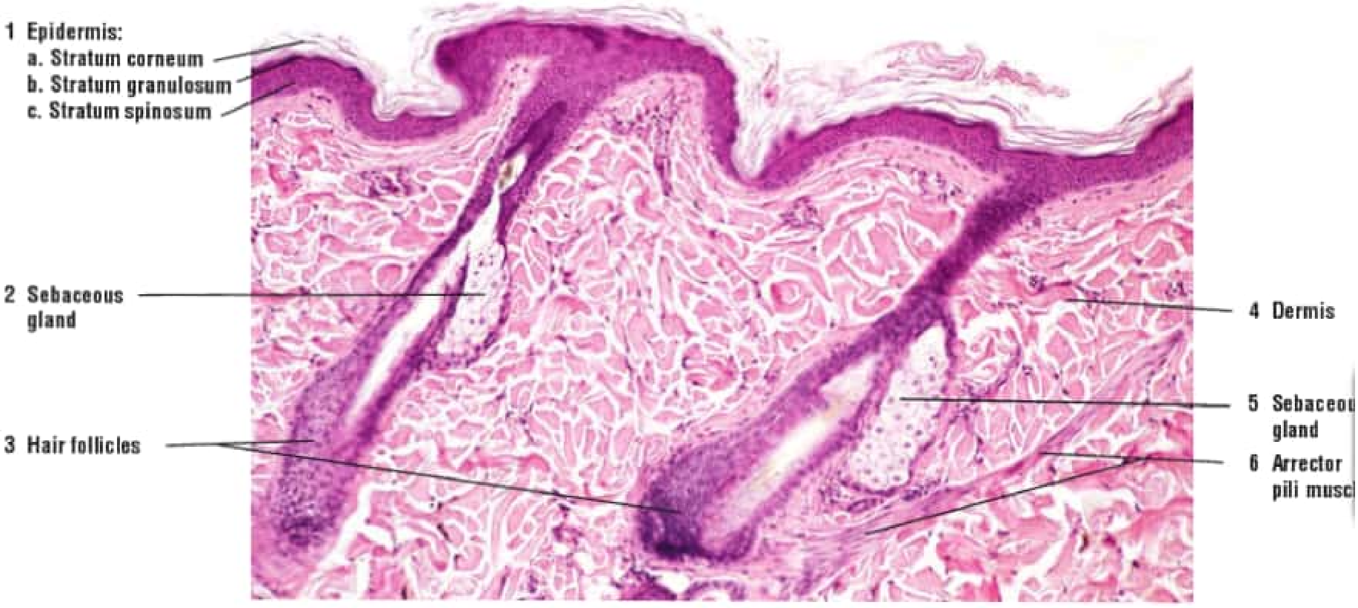

1 Epidermis:
a. Stratum corneum
b. Stratum granulosum
c. Stratum spinosum
2 Sebaceous gland
3 Hair follicles
4 Dermis
5 Sebaceou gland
6 Arrector pili muscl

FIGURE 10.3 ■ Hairy thin skin of the scalp: hair follicles and surrounding structures. Stain: hematoxylin and eosin. ×40.

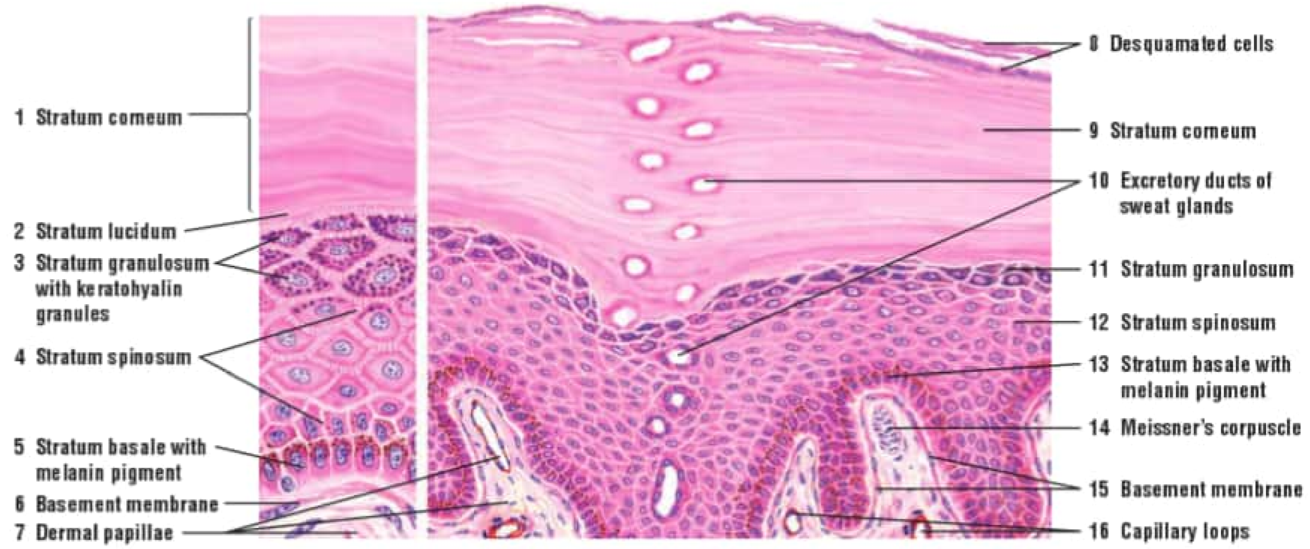

1 Stratum corneum
2 Stratum lucidum
3 Stratum granulosum with keratohyalin granules
4 Stratum spinosum
5 Stratum basale with melanin pigment
6 Basement membrane
7 Dermal papillae
8 Desquamated cells
9 Stratum corneum
10 Excretory ducts of sweat glands
11 Stratum granulosum
12 Stratum spinosum
13 Stratum basale with melanin pigment
14 Meissner's corpuscle
15 Basement membrane
16 Capillary loops

FIGURE 10.5 ■ Thick skin of the palm, superficial cell layers, and melanin pigment. Stain: hematoxylin and eosin. Medium magnification.

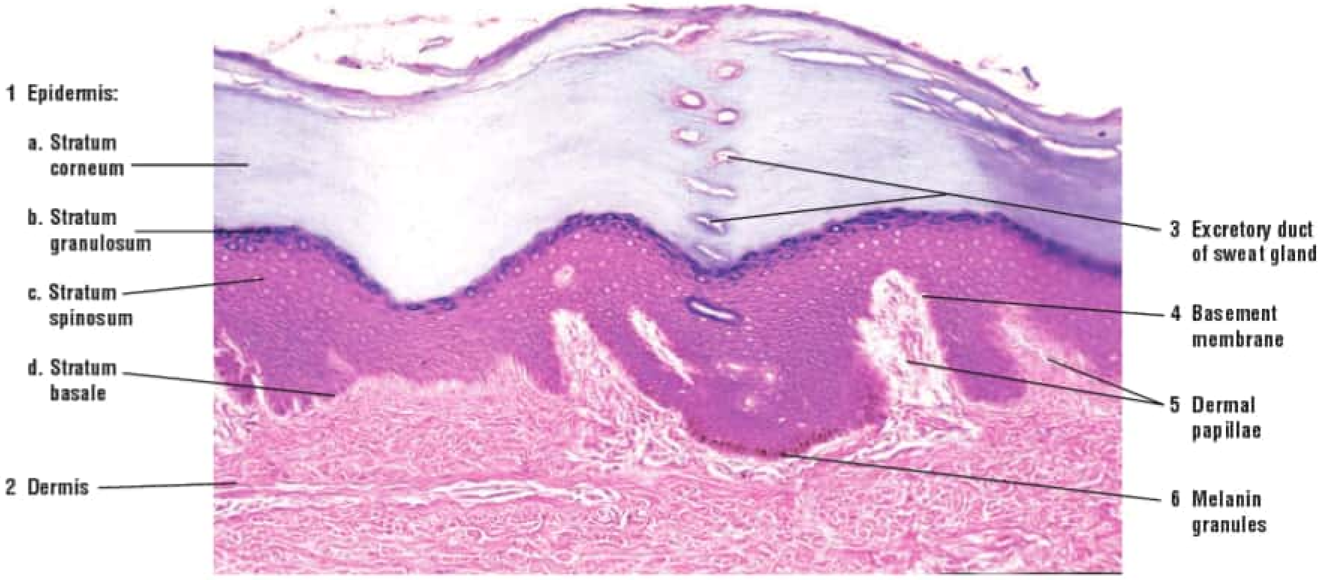

1 Epidermis:
a. Stratum corneum
b. Stratum granulosum
c. Stratum spinosum
d. Stratum basale
2 Dermis
3 Excretory duct of sweat gland
4 Basement membrane
5 Dermal papillae
6 Melanin granules

FIGURE 10.6 ■ Thick skin: Epidermis and superficial cell layers. Stain: hematoxylin and eosin. ×40.

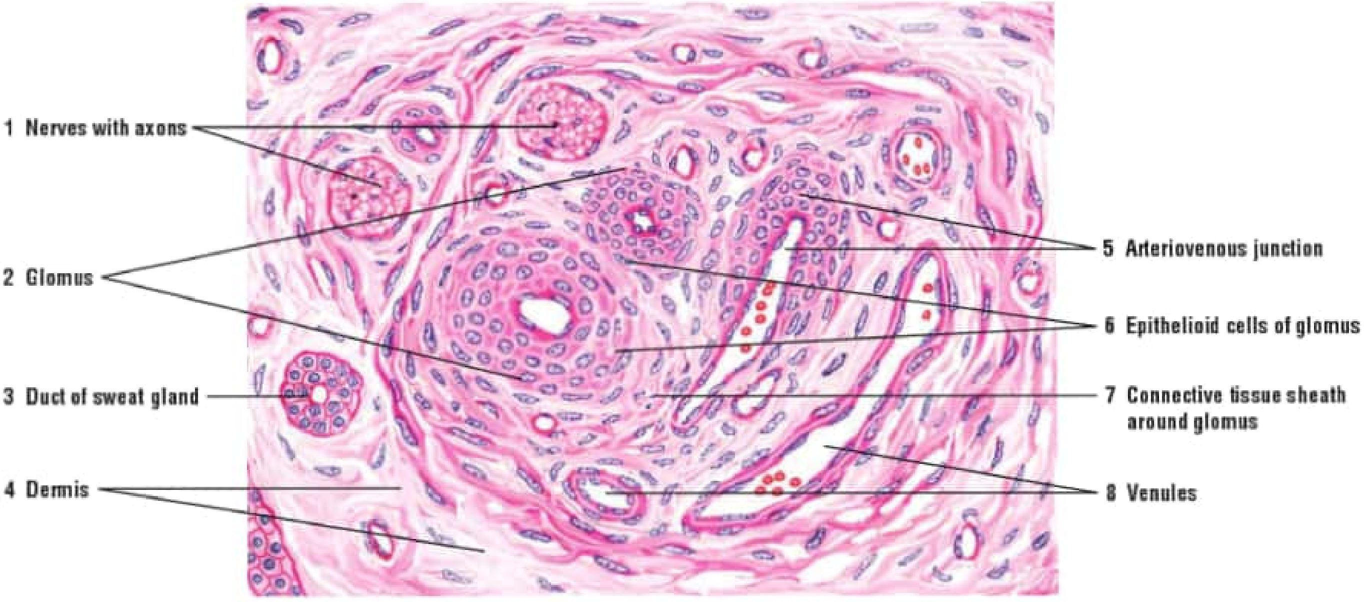

1 Nerves with axons
2 Glomus
3 Duct of sweat gland
4 Dermis
5 Arteriovenous junction
6 Epithelioid cells of glomus
7 Connective tissue sheath around glomus
8 Venules

FIGURE 10.10 ■ Glomus in the dermis of thick skin. Stain: hematoxylin and eosin. High magnification.

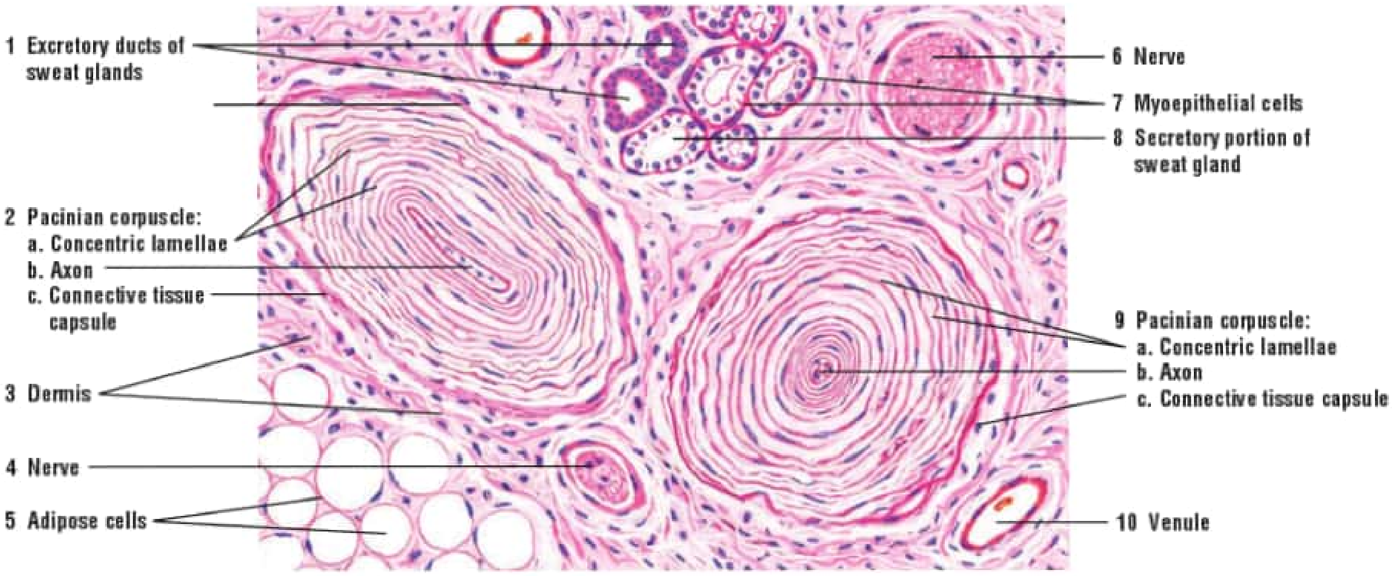

1 Excretory ducts of sweat glands
2 Pacinian corpuscle:
a. Concentric lamellae
b. Axon
c. Connective tissue capsule
3 Dermis
4 Nerve
5 Adipose cells
6 Nerve
7 Myoepithelial cells
8 Secretory portion of sweat gland
9 Pacinian corpuscle:
a. Concentric lamellae
b. Axon
c. Connective tissue capsule
10 Venule

FIGURE 10.11 ■ Pacinian corpuscles in the dermis of thick skin (transverse and longitudinal sections). Stain: hematoxylin and eosin. High magnification.

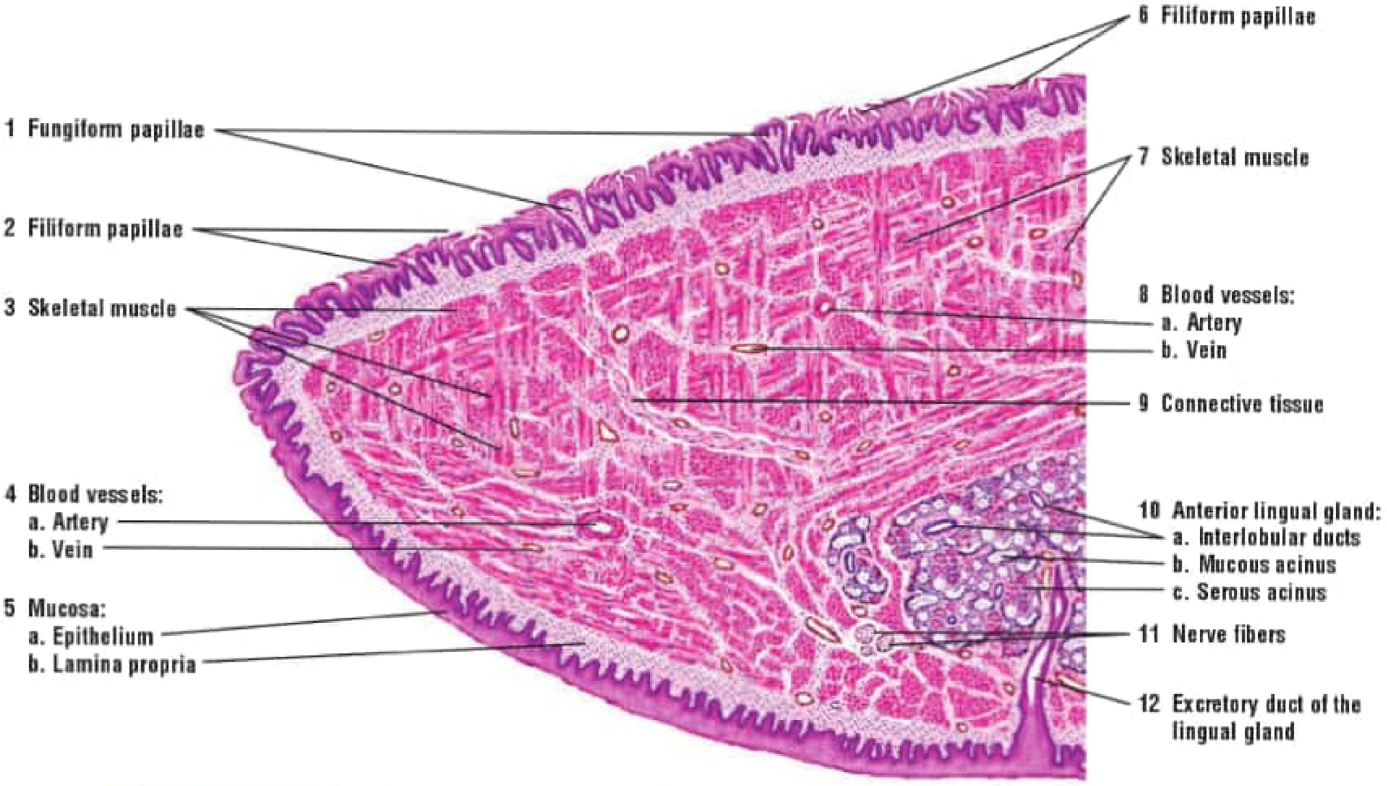

1 Fungiform papillae
2 Filiform papillae
3 Skeletal muscle
4 Blood vessels:
a. Artery
b. Vein
5 Mucosa:
a. Epithelium
b. Lamina propria
6 Filiform papillae
7 Skeletal muscle
8 Blood vessels:
a. Artery
b. Vein
9 Connective tissue
10 Anterior lingual gland:
a. Interlobular ducts
b. Mucous acinus
c. Serous acinus
11 Nerve fibers
12 Excretory duct of the lingual gland

FIGURE 11.2 ■ Anterior region of the tongue (longitudinal section). Stain: hematoxylin and eosin. Low magnification.

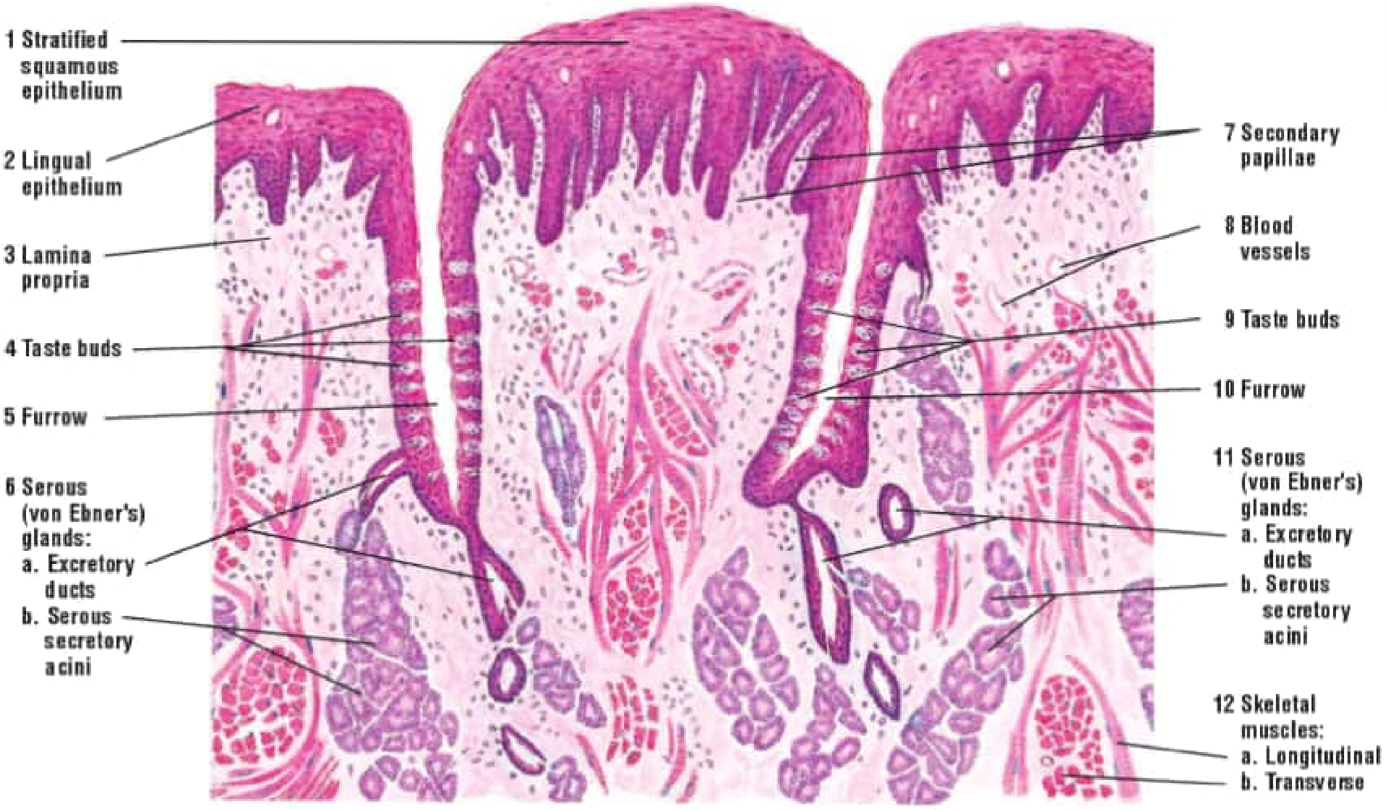

1 Stratified squamous epithelium
2 Lingual epithelium
3 Lamina propria
4 Taste buds
5 Furrow
6 Serous (von Ebner's) glands:
a. Excretory ducts
b. Serous secretory acini
7 Secondary papillae
8 Blood vessels
9 Taste buds
10 Furrow
11 Serous (von Ebner's) glands:
a. Excretory ducts
b. Serous secretory acini
12 Skeletal muscles:
a. Longitudinal
b. Transverse

FIGURE 11.3 ■ Posterior tongue: circumvallate papilla, surrounding furrow, and serous (von Ebner's) glands (cross section). Stain: hematoxylin and eosin. Medium magnification.

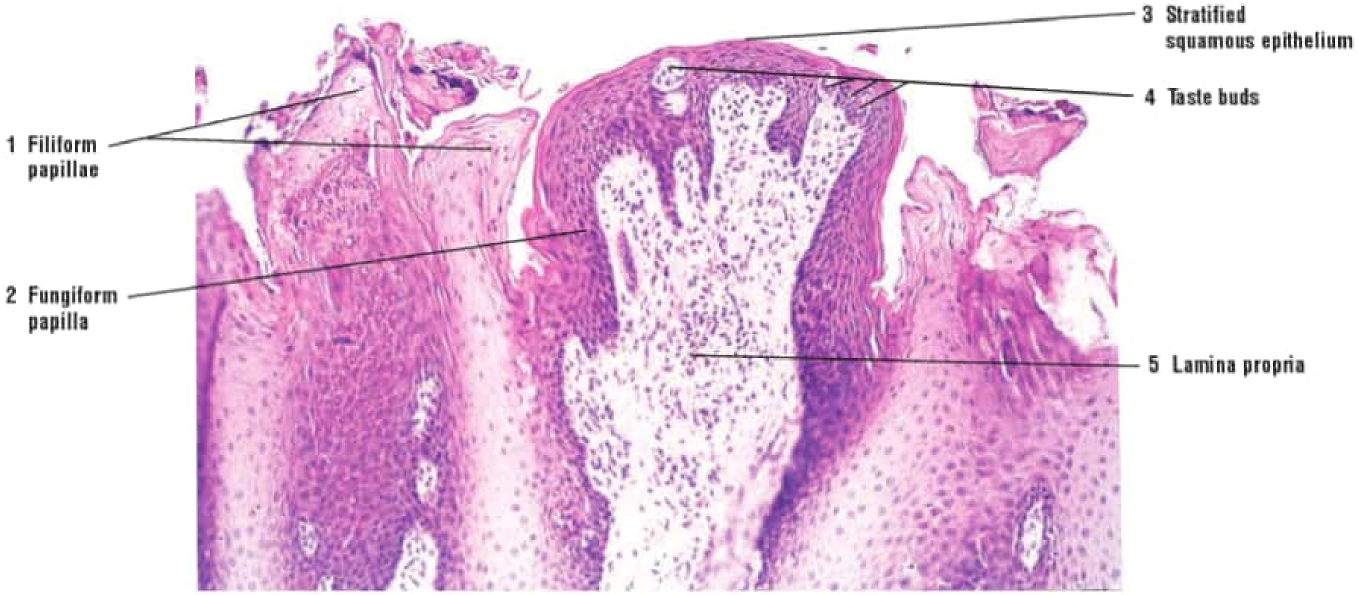

1 Filiform papillae
2 Fungiform papilla
3 Stratified squamous epithelium
4 Taste buds
5 Lamina propria

FIGURE 11.4 ■ Filiform and fungiform papillae of the tongue. Stain: hematoxylin and eosin. ×25.

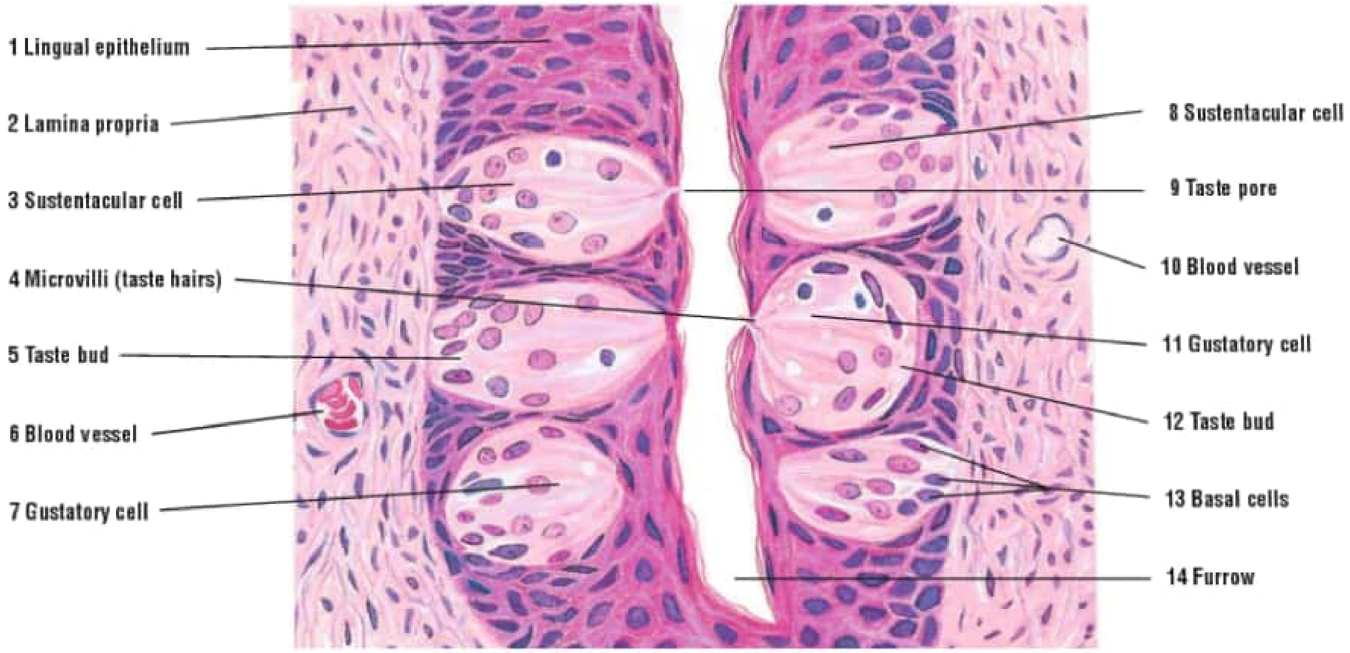

1 Lingual epithelium
2 Lamina propria
3 Sustentacular cell
4 Microvilli (taste hairs)
5 Taste bud
6 Blood vessel
7 Gustatory cell
8 Sustentacular cell
9 Taste pore
10 Blood vessel
11 Gustatory cell
12 Taste bud
13 Basal cells
14 Furrow

FIGURE 11.5 ■ Posterior tongue: taste buds in the furrow of circumvallate papilla. Stain: hematoxylin and eosin. High magnification.

the glands merges with the stratified squamous surface epithelium (1a) of the esophagus (see Figure 12.2). Numerous blood vessels, such as the **vein** and **artery (11),** are found in the connective tissue of the submucosa (3).

Located inferior to the submucosa (3) is the **muscularis externa (4),** composed of two well-defined muscle layers, an **inner circular muscle layer (4a)** and the **outer longitudinal muscle layer (4b),** whose muscle fibers are shown here sectioned in a transverse plane. A thin layer of **connective tissue (13)** lies between the inner circular muscle layer (4a) and the outer longitudinal muscle layer (4b).

The muscularis externa (4) of the esophagus is highly variable in different species. In humans, the muscularis externa (4) in the upper third of the esophagus consists primarily of striated skeletal muscles. In the middle third of the esophagus, the inner circular layer (4a) and the outer longitudinal layer (4b) exhibit a mixture of both smooth muscle and skeletal muscle fibers. In the lower third of the esophagus, only smooth muscle is present.

The **adventitia (5)** of the esophagus consists of a loose connective tissue layer that blends with the adventitia of the trachea and the surrounding structures. **Adipose tissue (14),** large blood vessels, **artery** and **vein (15),** and **nerve fibers (6)** are numerous in the connective tissue of the adventitia (5).

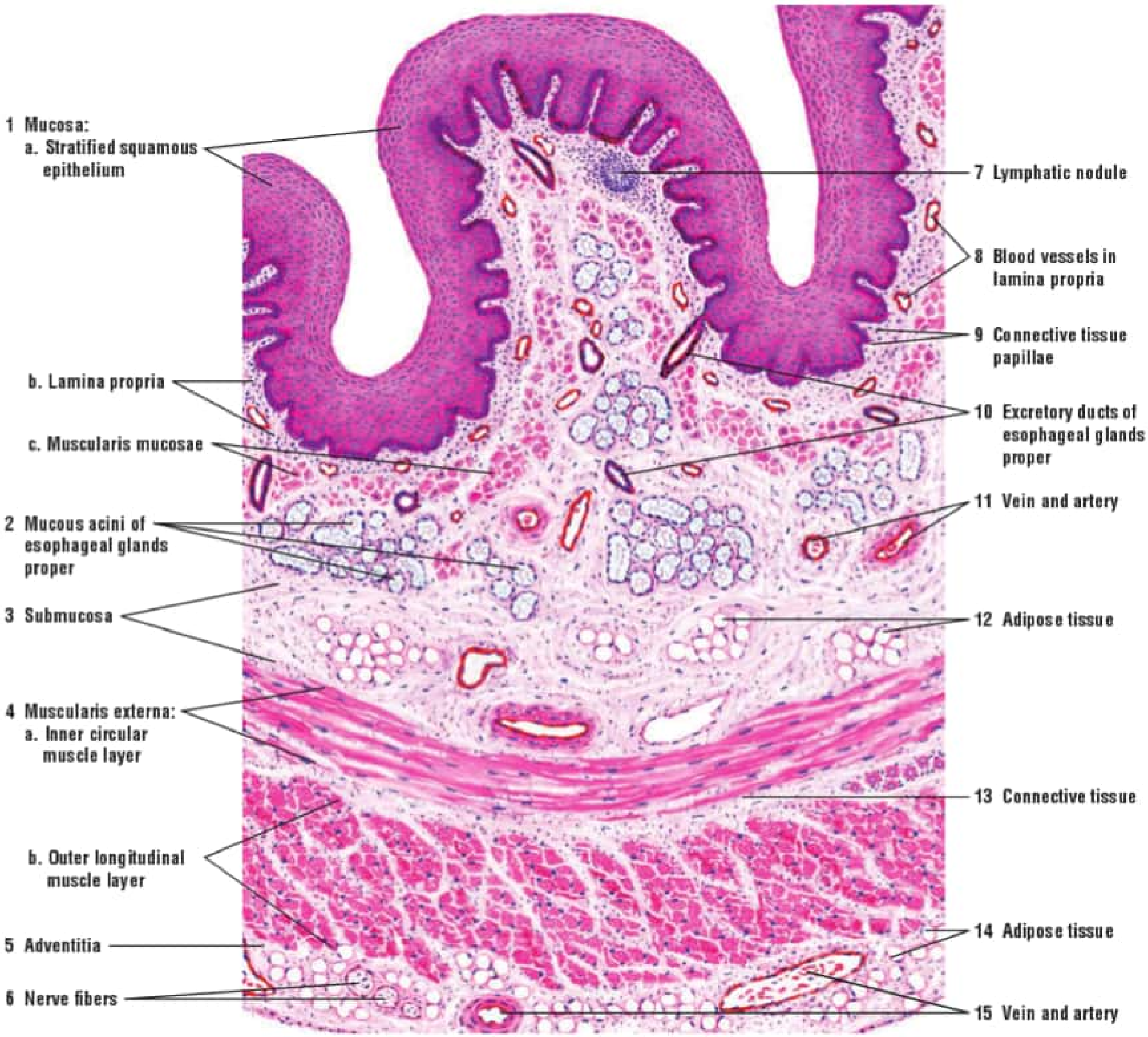

1 Mucosa:
a. Stratified squamous epithelium
b. Lamina propria
c. Muscularis mucosae
2 Mucous acini of esophageal glands proper
3 Submucosa
4 Muscularis externa:
a. Inner circular muscle layer
b. Outer longitudinal muscle layer
5 Adventitia
6 Nerve fibers
7 Lymphatic nodule
8 Blood vessels in lamina propria
9 Connective tissue papillae
10 Excretory ducts of esophageal glands proper
11 Vein and artery
12 Adipose tissue
13 Connective tissue
14 Adipose tissue
15 Vein and artery

FIGURE 12.1 ■ Wall of upper esophagus (transverse section). Stain: hematoxylin and eosin. Low magnification.

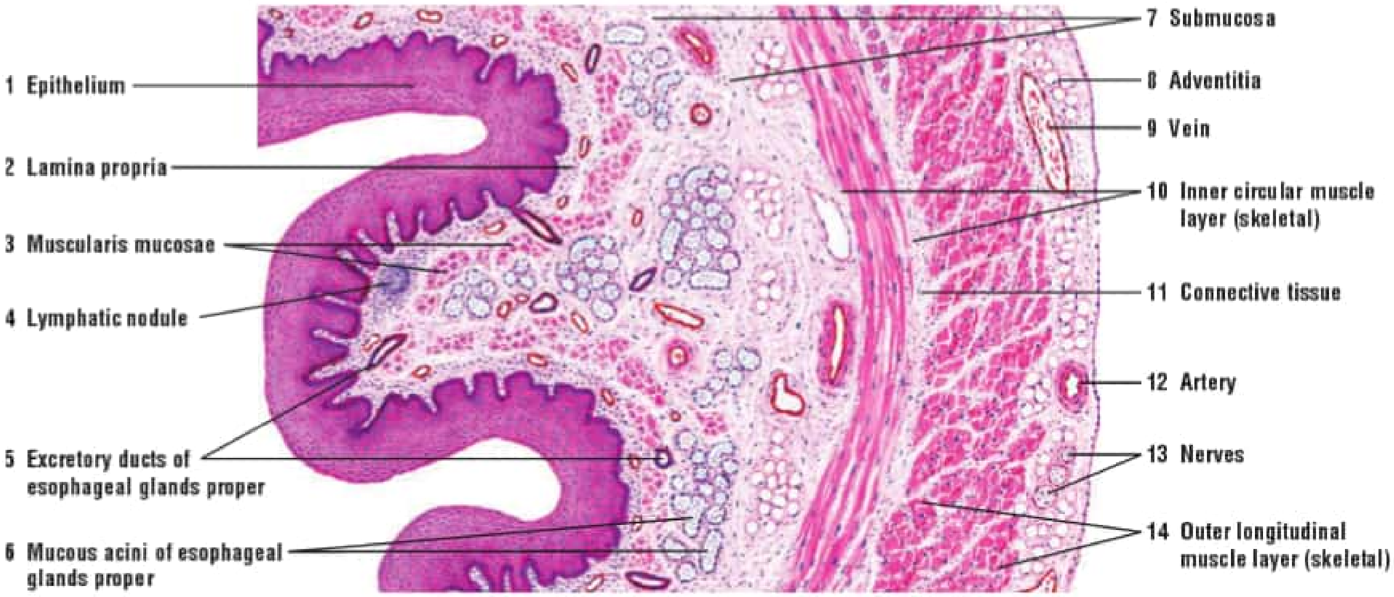

1 Epithelium
2 Lamina propria
3 Muscularis mucosae
4 Lymphatic nodule
5 Excretory ducts of esophageal glands proper
6 Mucous acini of esophageal glands proper
7 Submucosa
8 Adventitia
9 Vein
10 Inner circular muscle layer (skeletal)
11 Connective tissue
12 Artery
13 Nerves
14 Outer longitudinal muscle layer (skeletal)

FIGURE 12.2 ■ Upper esophagus (transverse section). Stain: hematoxylin and eosin. Low magnification.

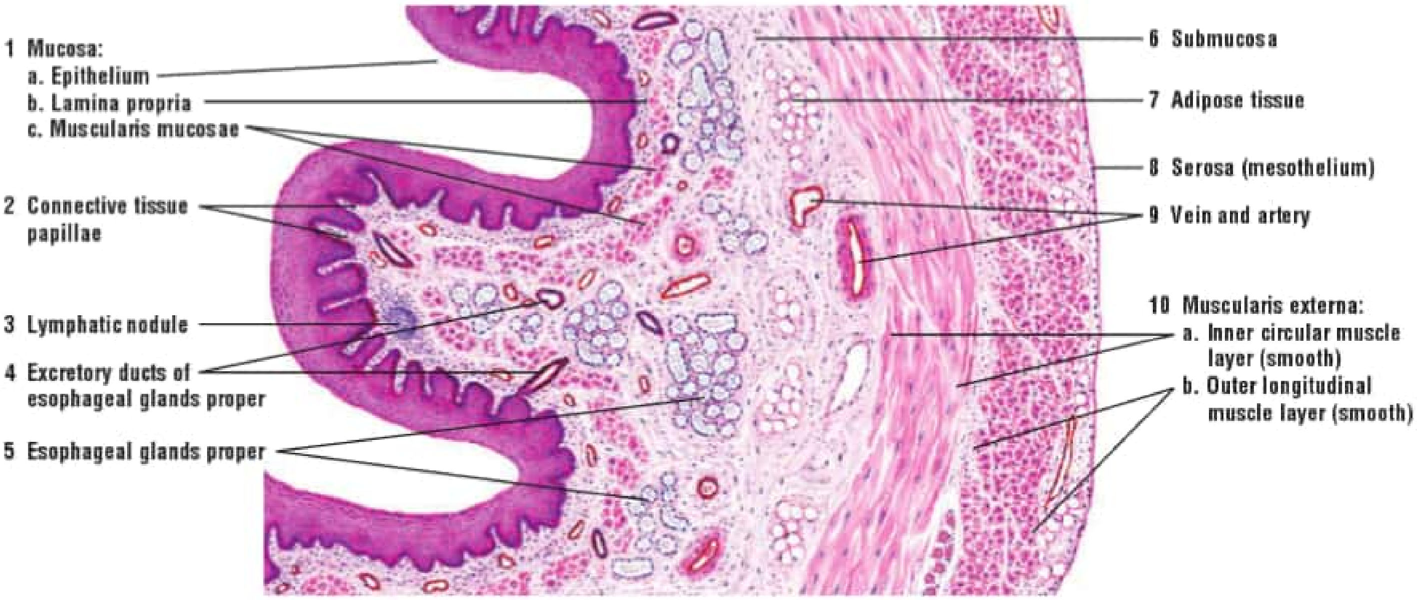

1 Mucosa:
a. Epithelium
b. Lamina propria
c. Muscularis mucosae
2 Connective tissue papillae
3 Lymphatic nodule
4 Excretory ducts of esophageal glands proper
5 Esophageal glands proper
6 Submucosa
7 Adipose tissue
8 Serosa (mesothelium)
9 Vein and artery
10 Muscularis externa:
a. Inner circular muscle layer (smooth)
b. Outer longitudinal muscle layer (smooth)

FIGURE 12.3 ■ Lower esophagus (transverse section). Stain: hematoxylin and eosin. Low magnification.

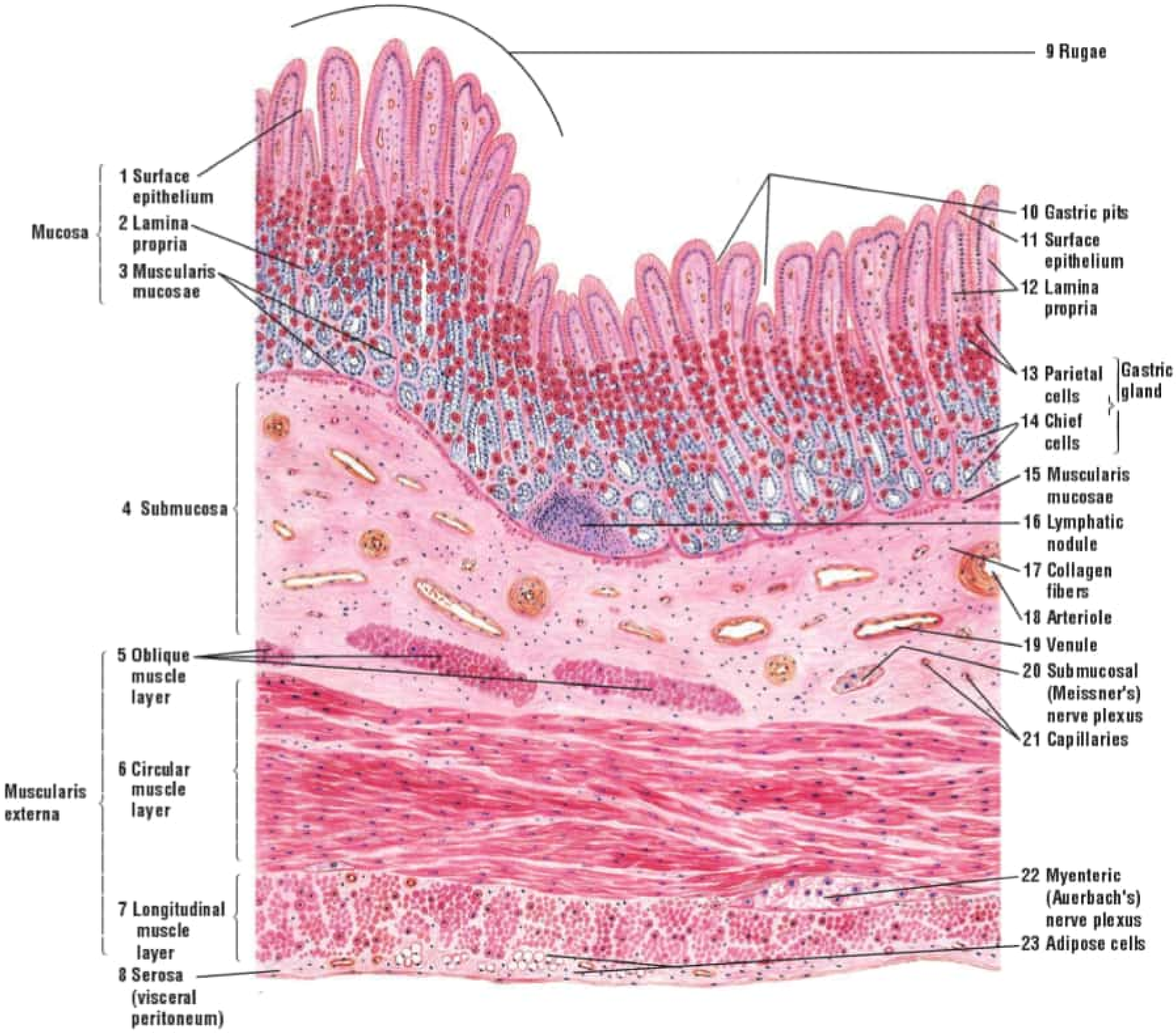

9 Rugae
Mucosa
1 Surface epithelium
2 Lamina propria
3 Muscularis mucosae
10 Gastric pits
11 Surface epithelium
12 Lamina propria
13 Parietal cells
14 Chief cells
Gastric gland
15 Muscularis mucosae
16 Lymphatic nodule
4 Submucosa
17 Collagen fibers
18 Arteriole
19 Venule
20 Submucosal (Meissner's) nerve plexus
21 Capillaries
Muscularis externa
5 Oblique muscle layer
6 Circular muscle layer
7 Longitudinal muscle layer
8 Serosa (visceral peritoneum)
22 Myenteric (Auerbach's) nerve plexus
23 Adipose cells

FIGURE 12.8 ■ Stomach: fundus and body regions (transverse section). Stain: hematoxylin and eosin. Low magnification.

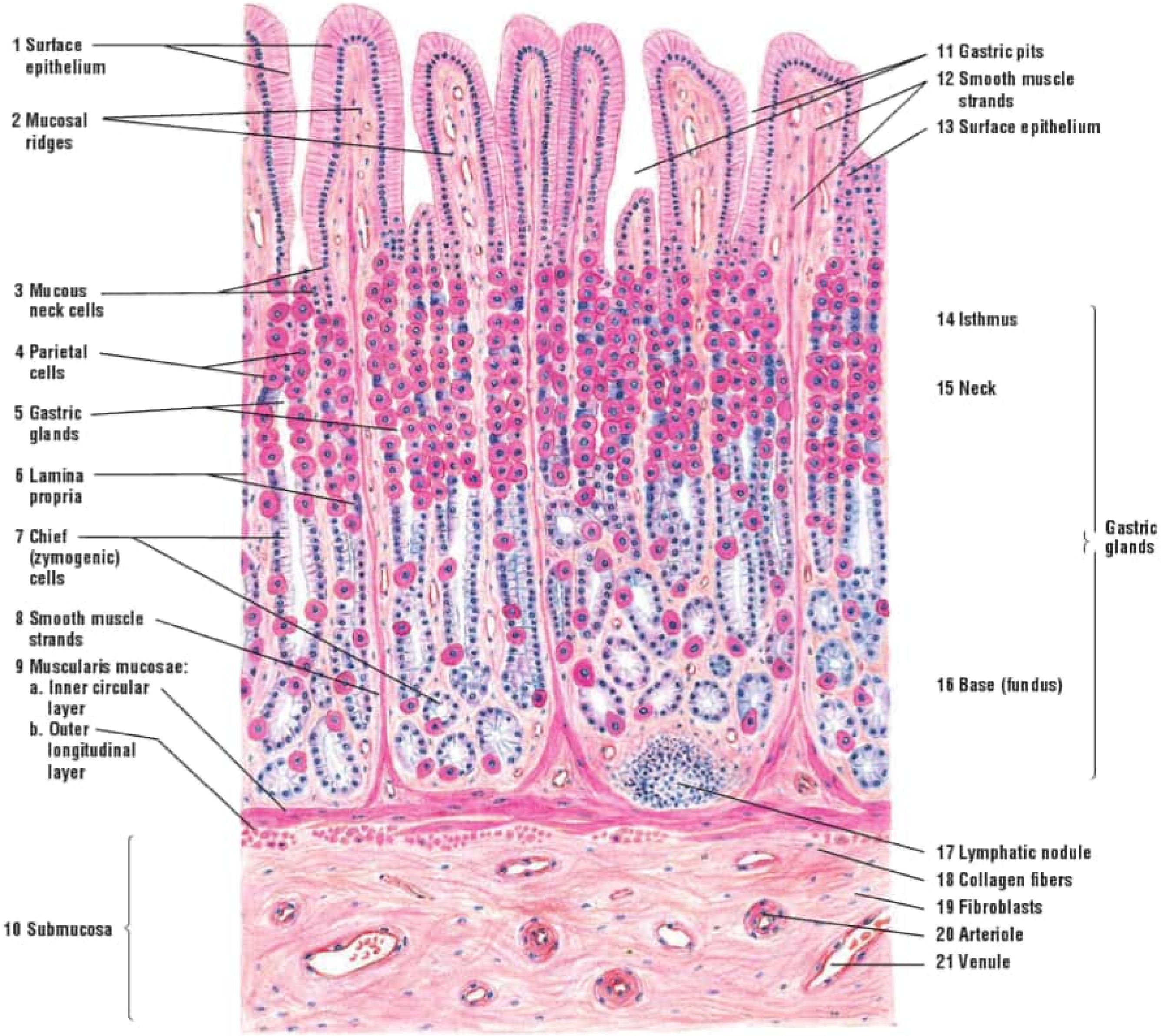

1 Surface epithelium
2 Mucosal ridges
3 Mucous neck cells
4 Parietal cells
5 Gastric glands
6 Lamina propria
7 Chief (zymogenic) cells
8 Smooth muscle strands
9 Muscularis mucosae:
a. Inner circular layer
b. Outer longitudinal layer
10 Submucosa
11 Gastric pits
12 Smooth muscle strands
13 Surface epithelium
14 Isthmus
15 Neck
16 Base (fundus)
Gastric glands
17 Lymphatic nodule
18 Collagen fibers
19 Fibroblasts
20 Arteriole
21 Venule

FIGURE 12.9 ■ Stomach: mucosa of the fundus and body (transverse section). Stain: hematoxylin and eosin. Medium magnification.

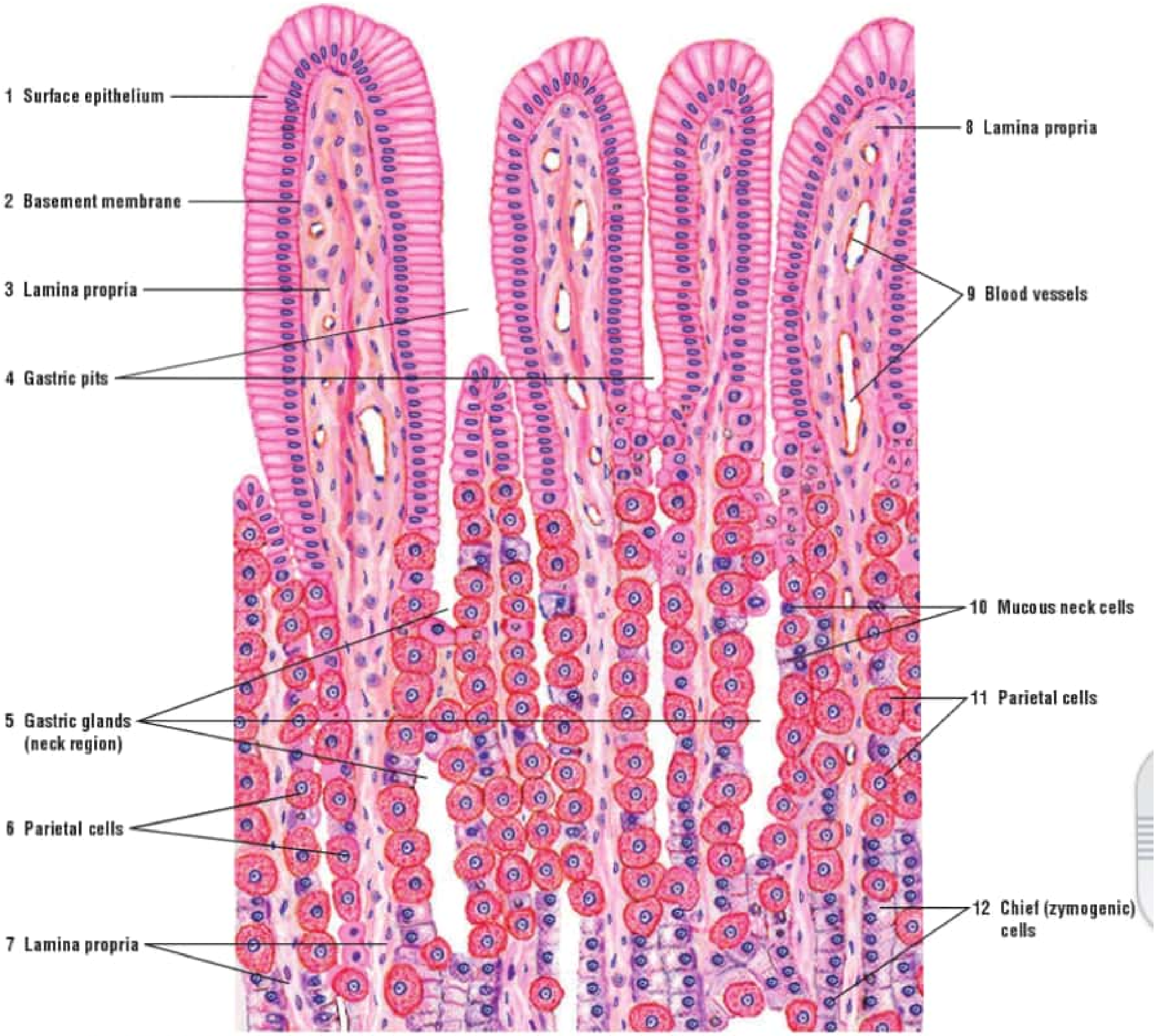

1 Surface epithelium
2 Basement membrane
3 Lamina propria
4 Gastric pits
5 Gastric glands (neck region)
6 Parietal cells
7 Lamina propria
8 Lamina propria
9 Blood vessels
10 Mucous neck cells
11 Parietal cells
12 Chief (zymogenic) cells

FIGURE 12.11 ■ Stomach: superficial region of gastric (fundic) mucosa. Stain: hematoxylin and eosin. High magnification.

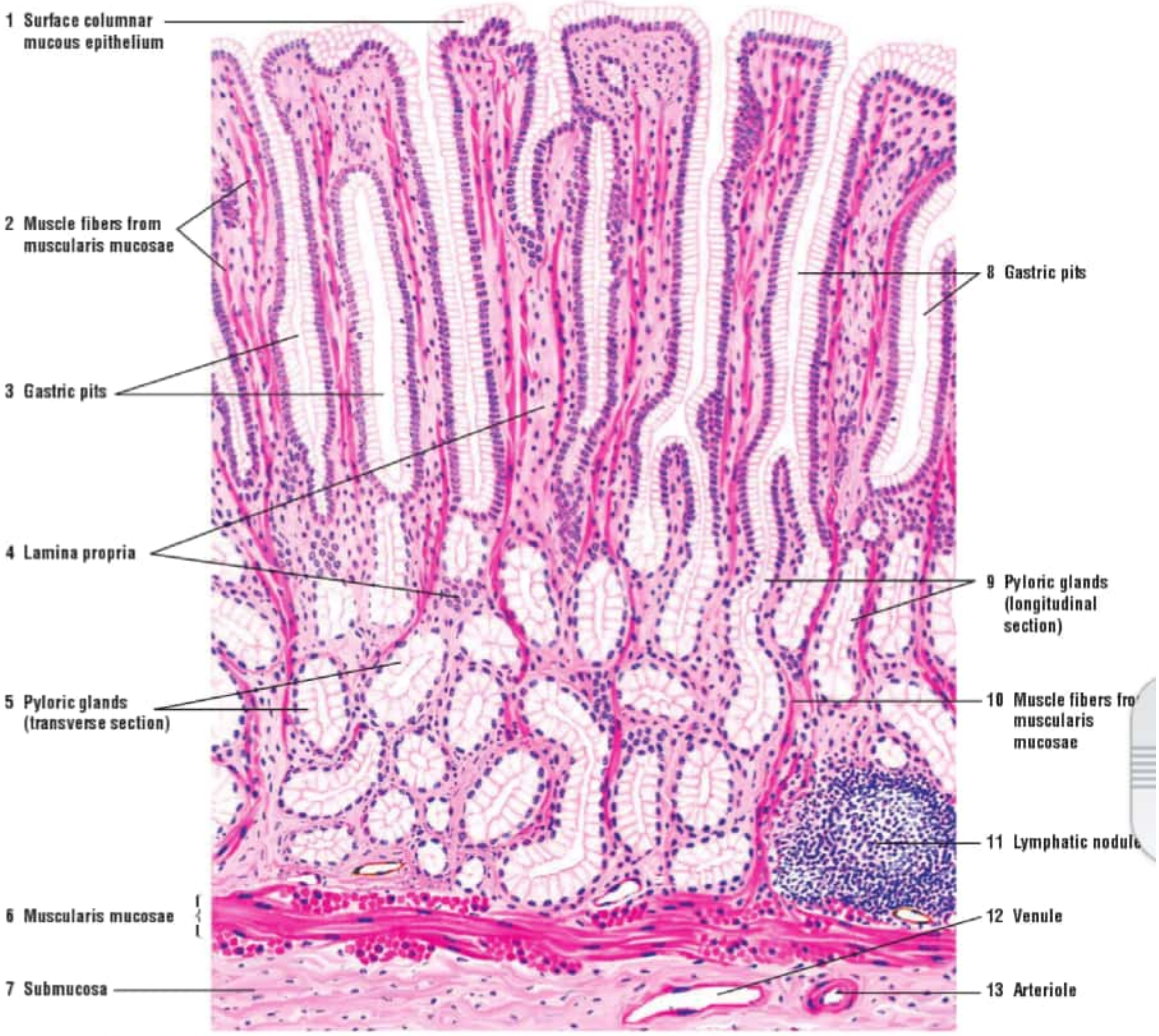

1 Surface columnar mucous epithelium
2 Muscle fibers from muscularis mucosae
3 Gastric pits
4 Lamina propria
5 Pyloric glands (transverse section)
6 Muscularis mucosae
7 Submucosa
8 Gastric pits
9 Pyloric glands (longitudinal section)
10 Muscle fibers fro muscularis mucosae
11 Lymphatic nodul
12 Venule
13 Arteriole

FIGURE 12.13 ■ Pyloric region of the stomach. Stain: hematoxylin and eosin. Medium magnification.

light-staining **goblet cells** (2); and short, tubular **intestinal glands** (**crypts of Lieberkühn**) (**4, 8**) in the lamina propria (7b). Duodenal glands (3, 13) in the submucosa (13) characterize the duodenum. These glands are absent in the rest of the small intestine (jejunum and ileum) and large intestine.

The villi (7) are mucosal surface modifications. Between the villi (7) are the **intervillous spaces** (**1**). The lining epithelium (7a) covers each villus and the intestinal glands (4, 8). Each villus (7) contains a core of lamina propria (7b), strands of **smooth muscle fibers** (**10**) that extend upward into the villi from the muscularis mucosae (9, 12), and a central lymphatic vessel called the **lacteal** (**11**) (see Figure 13.7 for details).

The intestinal glands (4, 8) are located in the lamina propria (7b) and open into the intervillous spaces (1). In certain sections of the duodenum, the submucosal duodenal glands (13) extend into the lamina propria (3). The lamina propria (7b) also contains fine connective tissue fibers with reticular cells, diffuse lymphatic tissue, and **lymphatic nodules** (5).

The submucosa (13) in the duodenum is almost completely filled with branched, tubular duodenal glands (13). The duodenal glands (13) disrupt the muscularis mucosae (9, 12) when they penetrate into the lamina propria (3). The secretions from the duodenal glands (3) enter at the bottom of the intestinal glands (3, 4, 8).

In a cross section of the duodenum, the muscularis externa (14) consists of an **inner circular layer** (**14a**) and an **outer longitudinal layer** (**14b**) of smooth muscle. However, in this figure, the duodenum has been cut in a longitudinal plane, and the direction of fibers in these two smooth muscle layers is reversed. Parasympathetic ganglion cells of the **myenteric** (**Auerbach's**) **nerve plexus** (**6**), found in the small and large intestine, are visible in the connective tissue between the two muscle layers of the muscularis externa (14). Similar but smaller plexuses of ganglion cells are also found in the submucosa (not illustrated) in the small and large intestine.

The serosa (visceral peritoneum) (15) contains the connective tissue cells, blood vessels, and adipose cells. The serosa forms the outermost layer of the first part of the duodenum.

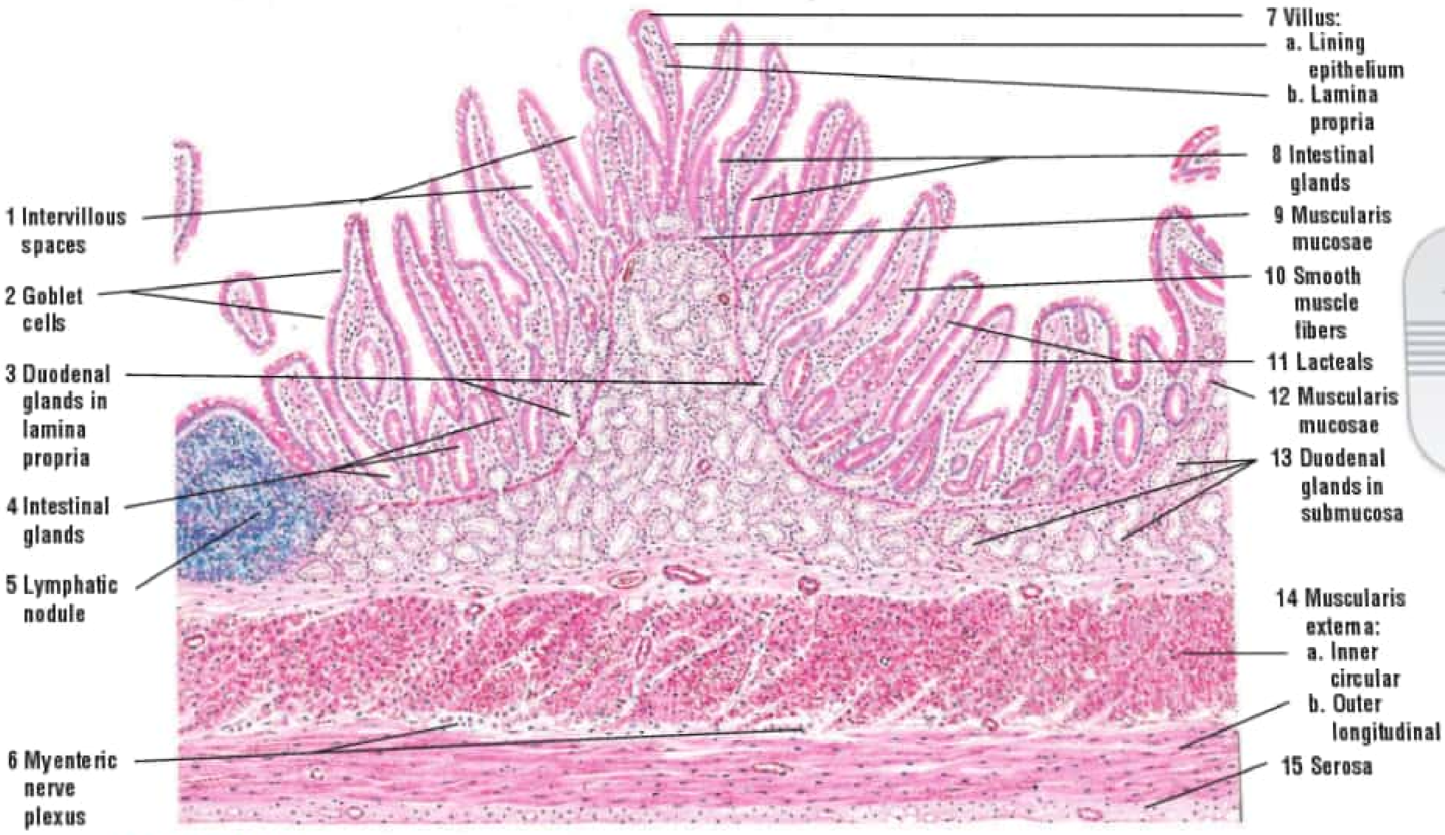

7 Villus:
a. Lining epithelium
b. Lamina propria
8 Intestinal glands
9 Muscularis mucosae
10 Smooth muscle fibers
11 Lacteals
12 Muscularis mucosae
13 Duodenal glands in submucosa
14 Muscularis externa:
a. Inner circular
b. Outer longitudinal
15 Serosa
1 Intervillous spaces
2 Goblet cells
3 Duodenal glands in lamina propria
4 Intestinal glands
5 Lymphatic nodule
6 Myenteric nerve plexus

FIGURE 13.1 ■ Duodenum of the small intestine (longitudinal section). Stain: hematoxylin and eosin. Low magnification.

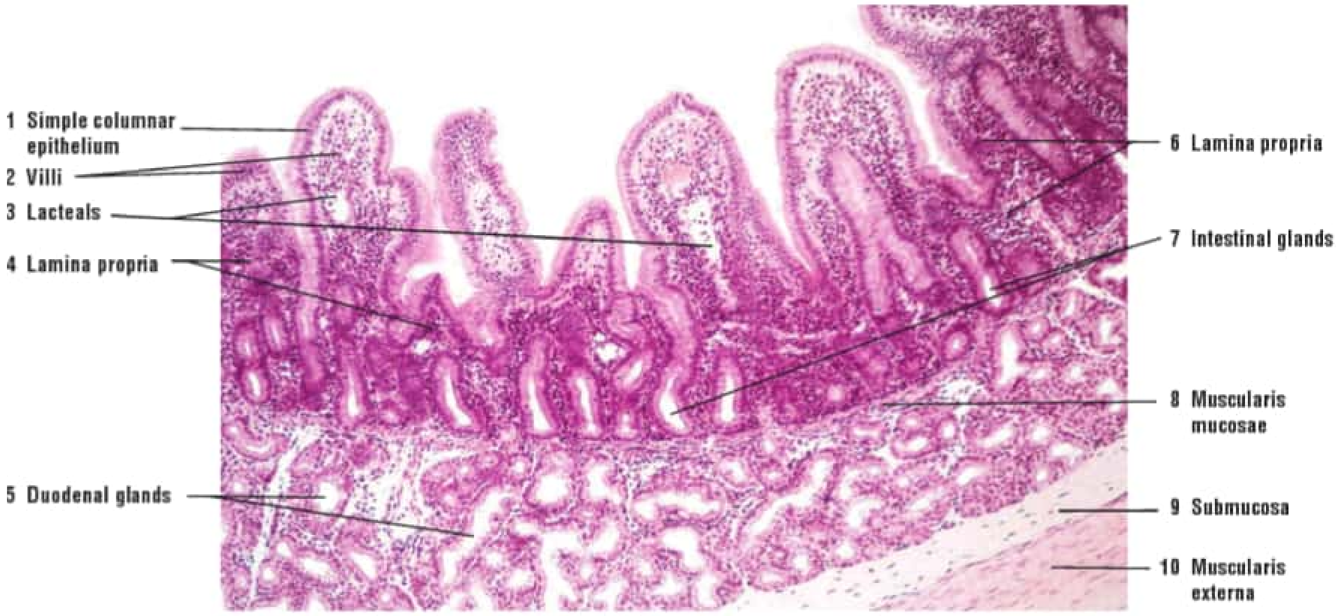

1 Simple columnar epithelium
2 Villi
3 Lacteals
4 Lamina propria
5 Duodenal glands
6 Lamina propria
7 Intestinal glands
8 Muscularis mucosae
9 Submucosa
10 Muscularis externa

FIGURE 13.2 ■ Small intestine: duodenum (transverse section). Stain: hematoxylin and eosin. ×25.

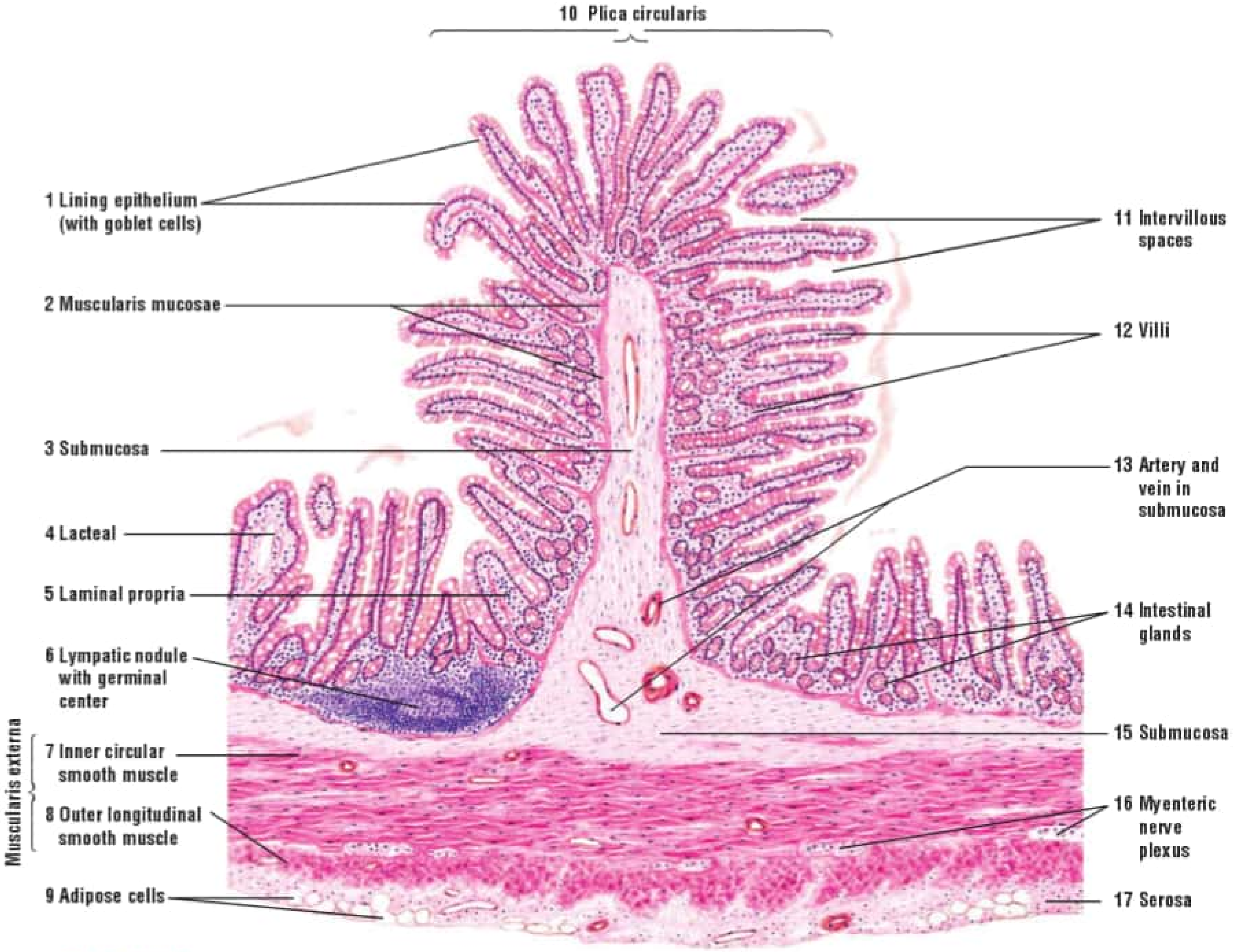

10 Plica circularis
1 Lining epithelium (with goblet cells)
2 Muscularis mucosae
3 Submucosa
4 Lacteal
5 Laminal propria
6 Lympatic nodule with germinal center
Muscularis externa
7 Inner circular smooth muscle
8 Outer longitudinal smooth muscle
9 Adipose cells
11 Intervillous spaces
12 Villi
13 Artery and vein in submucosa
14 Intestinal glands
15 Submucosa
16 Myenteric nerve plexus
17 Serosa

FIGURE 13.3 ■ Small intestine: jejunum (transverse section). Stain: hematoxylin and eosin. Low magnification.

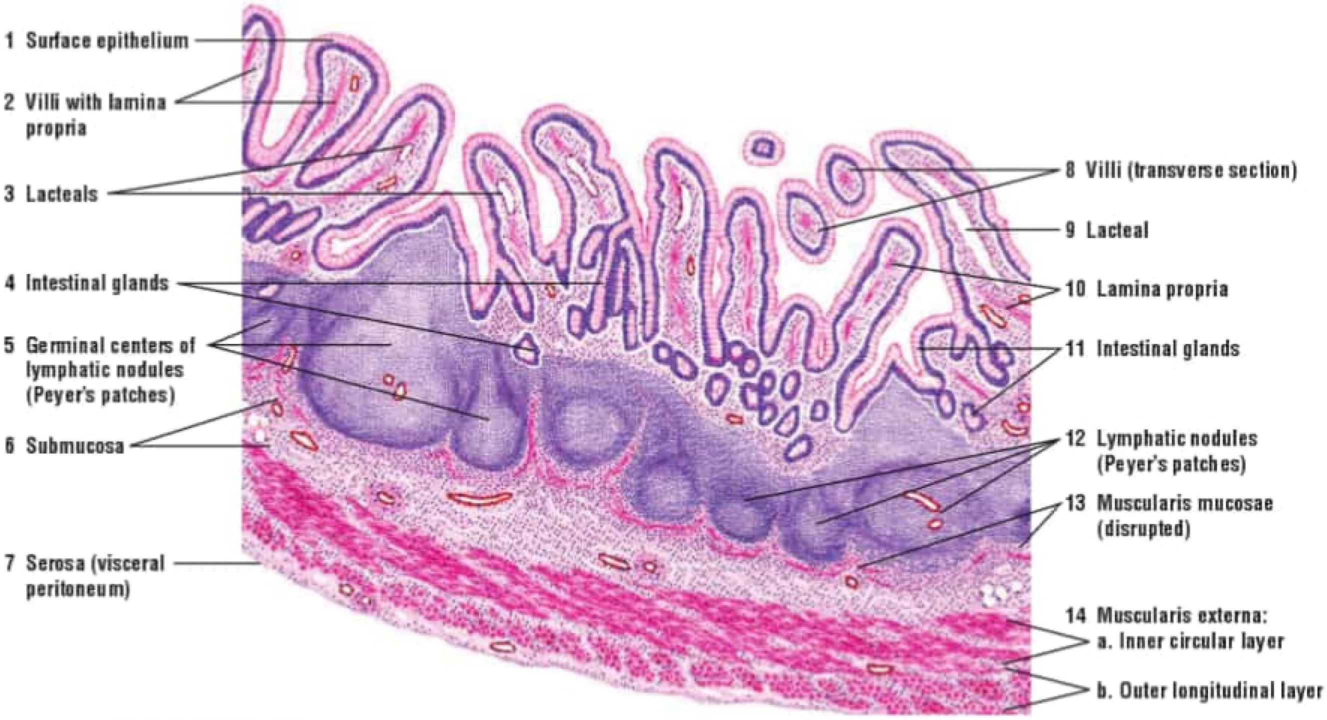

1 Surface epithelium
2 Villi with lamina propria
3 Lacteals
4 Intestinal glands
5 Germinal centers of lymphatic nodules (Peyer's patches)
6 Submucosa
7 Serosa (visceral peritoneum)
8 Villi (transverse section)
9 Lacteal
10 Lamina propria
11 Intestinal glands
12 Lymphatic nodules (Peyer's patches)
13 Muscularis mucosae (disrupted)
14 Muscularis externa:
a. Inner circular layer
b. Outer longitudinal layer

FIGURE 13.6 ■ Small intestine: ileum with lymphatic nodules (Peyer's patches) (transverse section). Stain: hematoxylin and eosin. Low magnification.

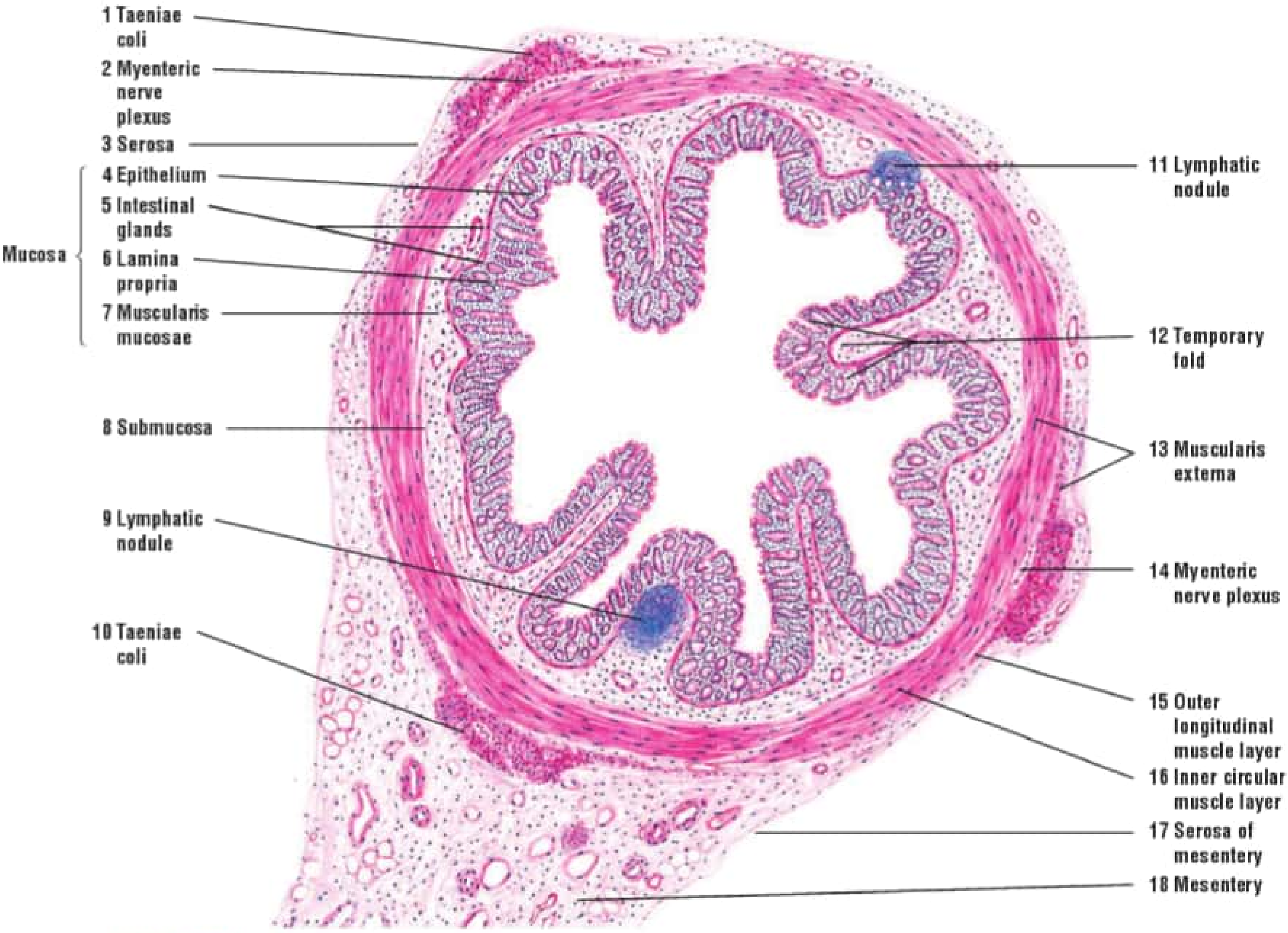

1 Taeniae coli
2 Myenteric nerve plexus
3 Serosa
Mucosa
4 Epithelium
5 Intestinal glands
6 Lamina propria
7 Muscularis mucosae
8 Submucosa
9 Lymphatic nodule
10 Taeniae coli
11 Lymphatic nodule
12 Temporary fold
13 Muscularis externa
14 Myenteric nerve plexus
15 Outer longitudinal muscle layer
16 Inner circular muscle layer
17 Serosa of mesentery
18 Mesentery

FIGURE 13.8 ■ Large intestine: colon and mesentery (panoramic view, transverse section). Stain: hematoxylin and eosin. Low magnification.

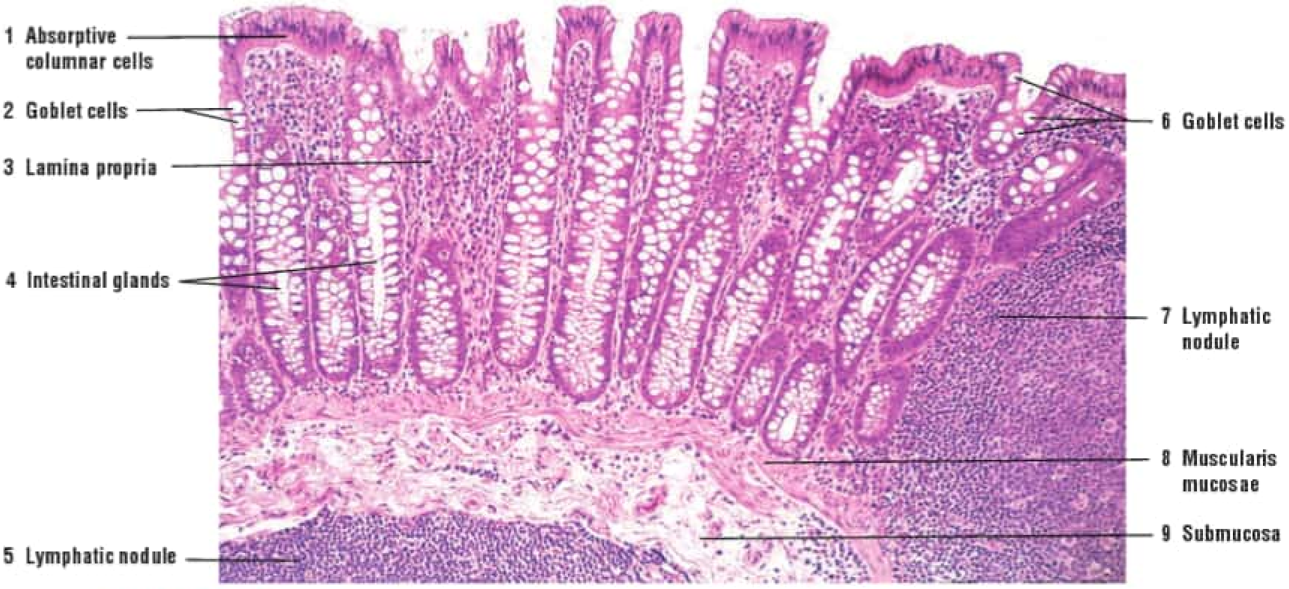

1 Absorptive columnar cells
2 Goblet cells
3 Lamina propria
4 Intestinal glands
5 Lymphatic nodule
6 Goblet cells
7 Lymphatic nodule
8 Muscularis mucosae
9 Submucosa

FIGURE 13.9 ■ Large intestine: colon wall (transverse section). Stain: hematoxylin and eosin. ×30.

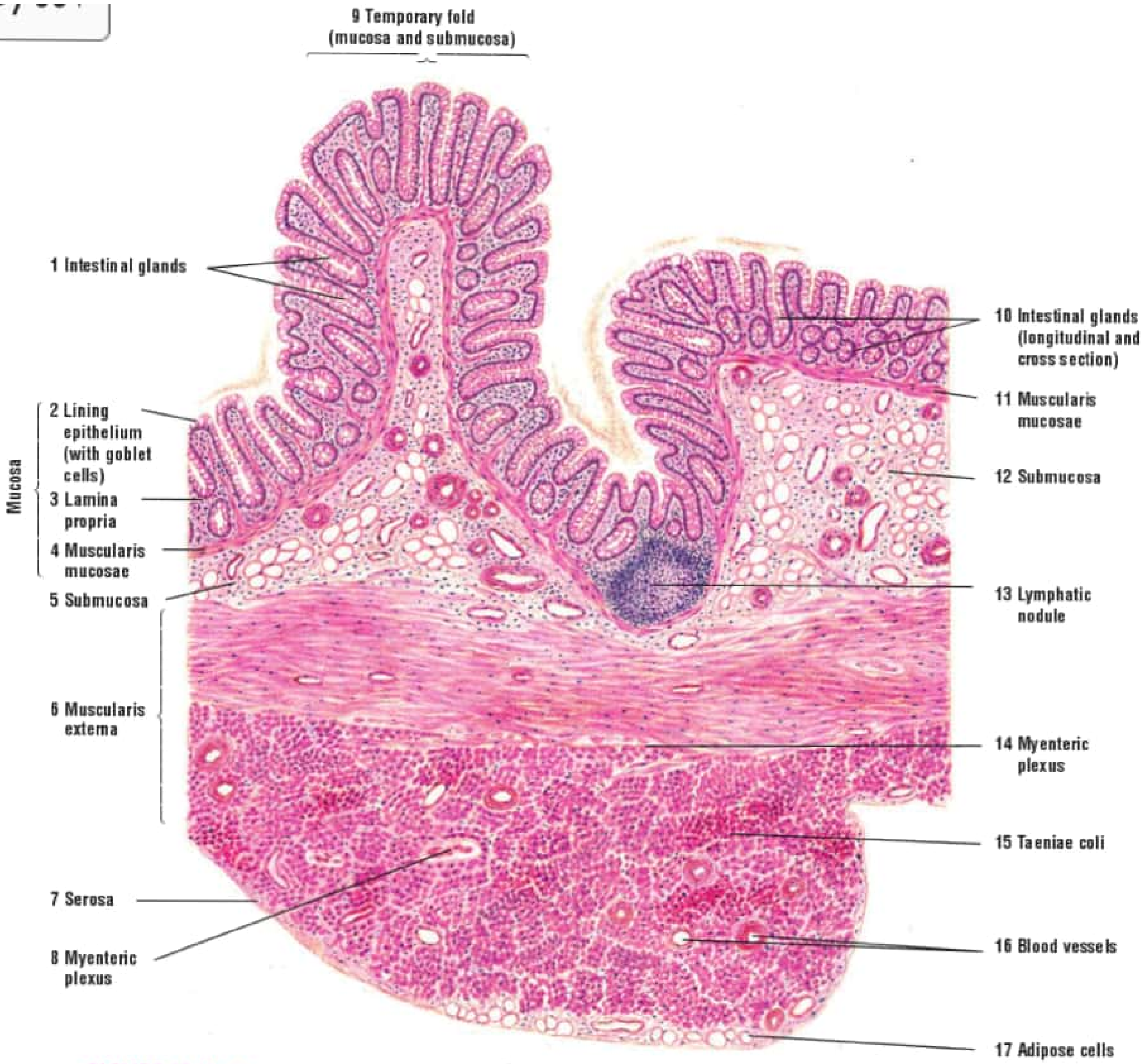

9 Temporary fold (mucosa and submucosa)
1 Intestinal glands
Mucosa
2 Lining epithelium (with goblet cells)
3 Lamina propria
4 Muscularis mucosae
5 Submucosa
6 Muscularis externa
7 Serosa
8 Myenteric plexus
10 Intestinal glands (longitudinal and cross section)
11 Muscularis mucosae
12 Submucosa
13 Lymphatic nodule
14 Myenteric plexus
15 Taeniae coli
16 Blood vessels
17 Adipose cells

FIGURE 13.10 ■ Large intestine: colon wall (transverse section). Stain: hematoxylin and eosin. Medium magnification.

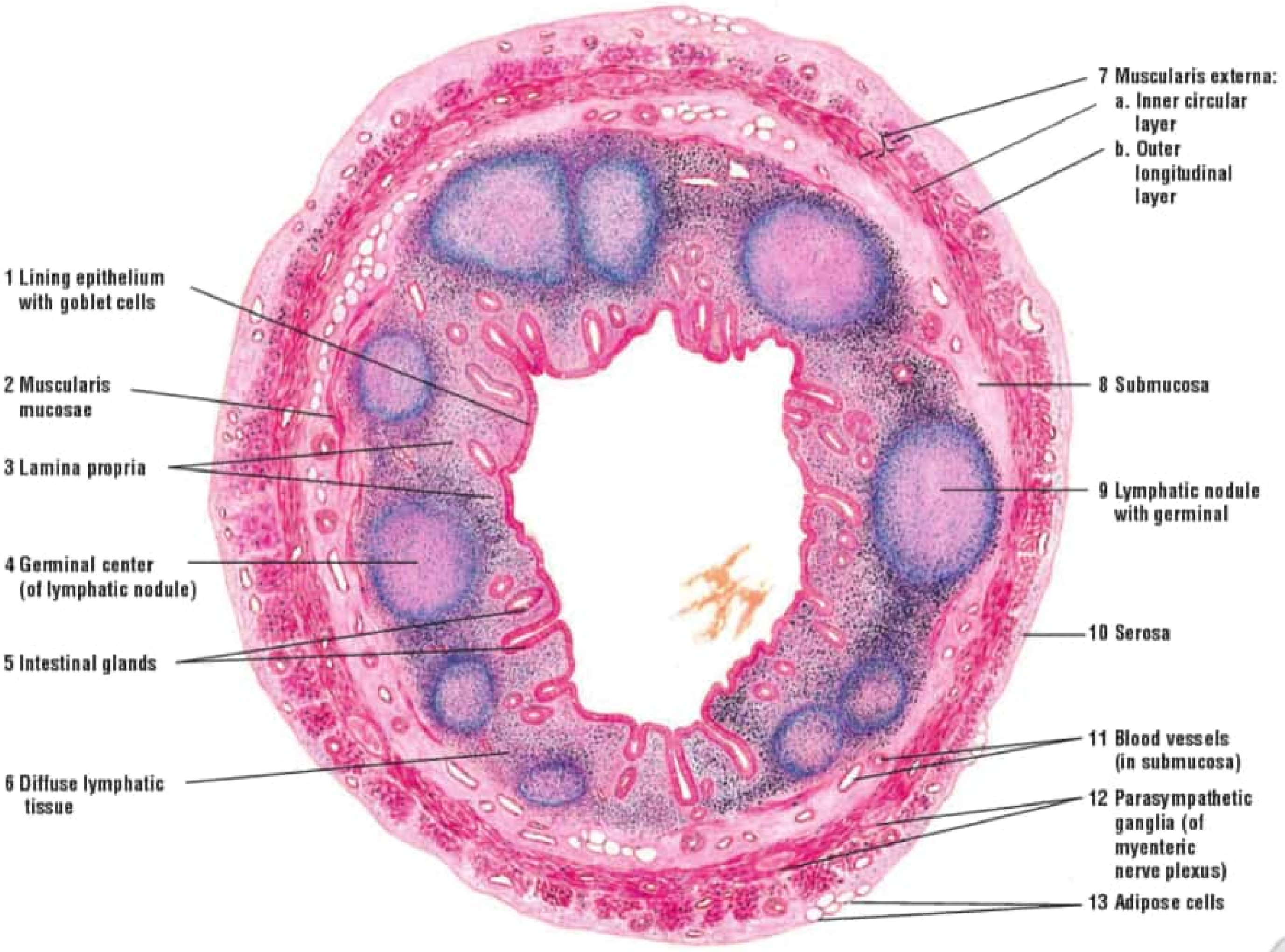

7 Muscularis externa:
a. Inner circular layer
b. Outer longitudinal layer
1 Lining epithelium with goblet cells
2 Muscularis mucosae
3 Lamina propria
4 Germinal center (of lymphatic nodule)
5 Intestinal glands
6 Diffuse lymphatic tissue
8 Submucosa
9 Lymphatic nodule with germinal
10 Serosa
11 Blood vessels (in submucosa)
12 Parasympathetic ganglia (of myenteric nerve plexus)
13 Adipose cells

FIGURE 13.11 ■ Appendix (panoramic view, transverse section). Stain: hematoxylin and eosin. Low magnification.

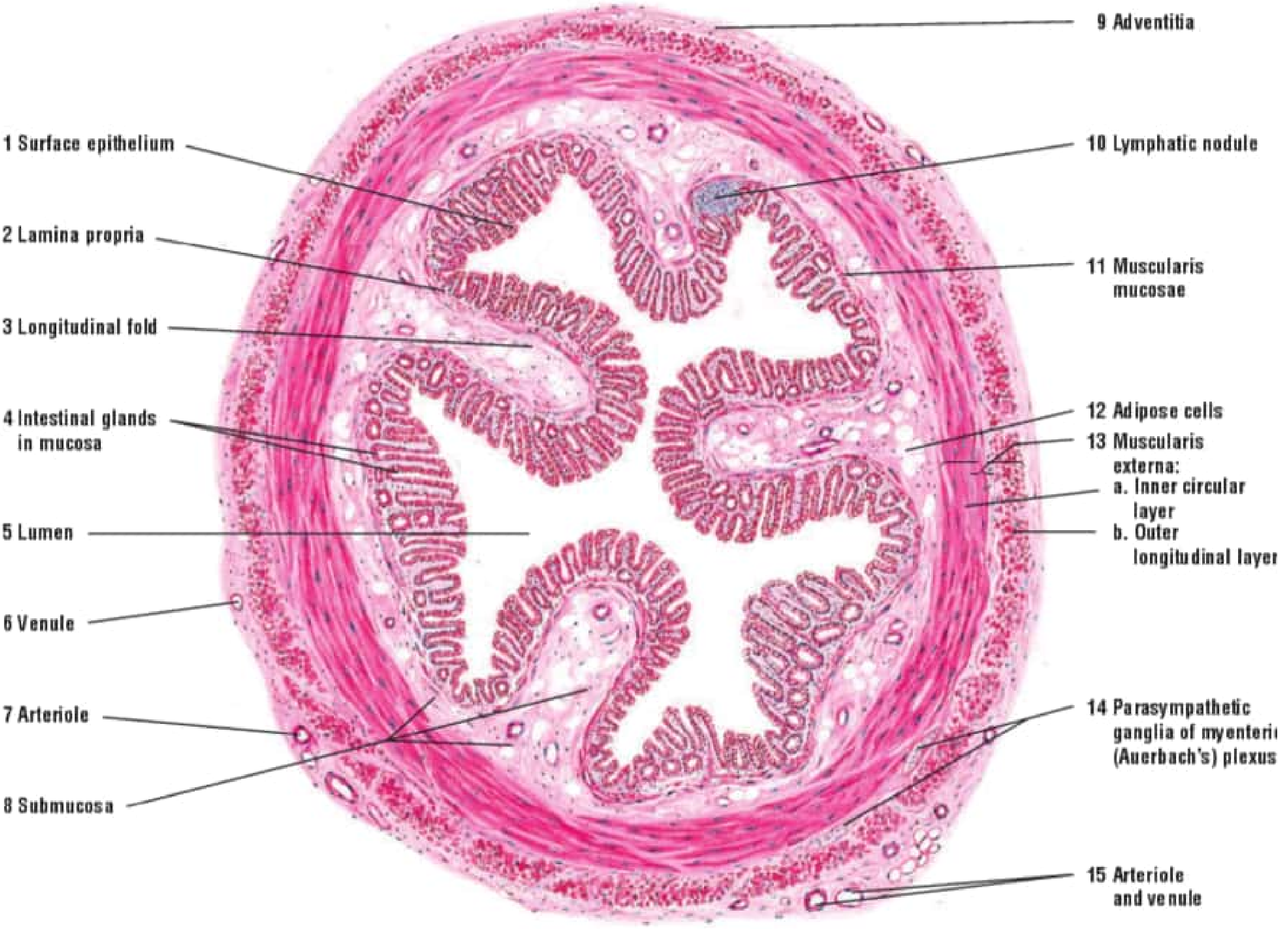

1 Surface epithelium
2 Lamina propria
3 Longitudinal fold
4 Intestinal glands in mucosa
5 Lumen
6 Venule
7 Arteriole
8 Submucosa
9 Adventitia
10 Lymphatic nodule
11 Muscularis mucosae
12 Adipose cells
13 Muscularis externa:
a. Inner circular layer
b. Outer longitudinal layer
14 Parasympathetic ganglia of myenteri
(Auerbach's) plexus
15 Arteriole and venule

FIGURE 13.12 ■ Rectum (panoramic view, transverse section). Stain: hematoxylin and eosin. Low magnification.

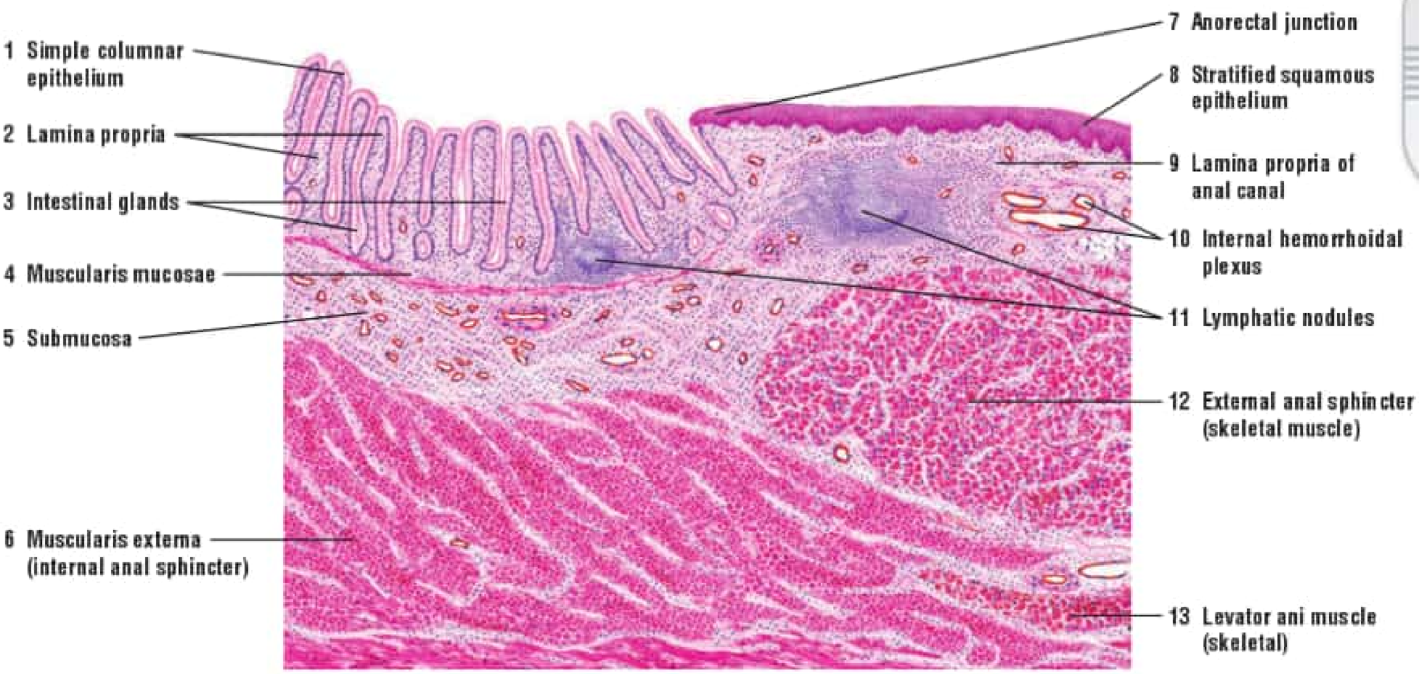

1 Simple columnar epithelium
2 Lamina propria
3 Intestinal glands
4 Muscularis mucosae
5 Submucosa
6 Muscularis externa (internal anal sphincter)
7 Anorectal junction
8 Stratified squamous epithelium
9 Lamina propria of anal canal
10 Internal hemorrhoidal plexus
11 Lymphatic nodules
12 External anal sphincter (skeletal muscle)
13 Levator ani muscle (skeletal)

FIGURE 13.13 ■ Anorectal junction (longitudinal section). Stain: hematoxylin and eosin. Low magnification.

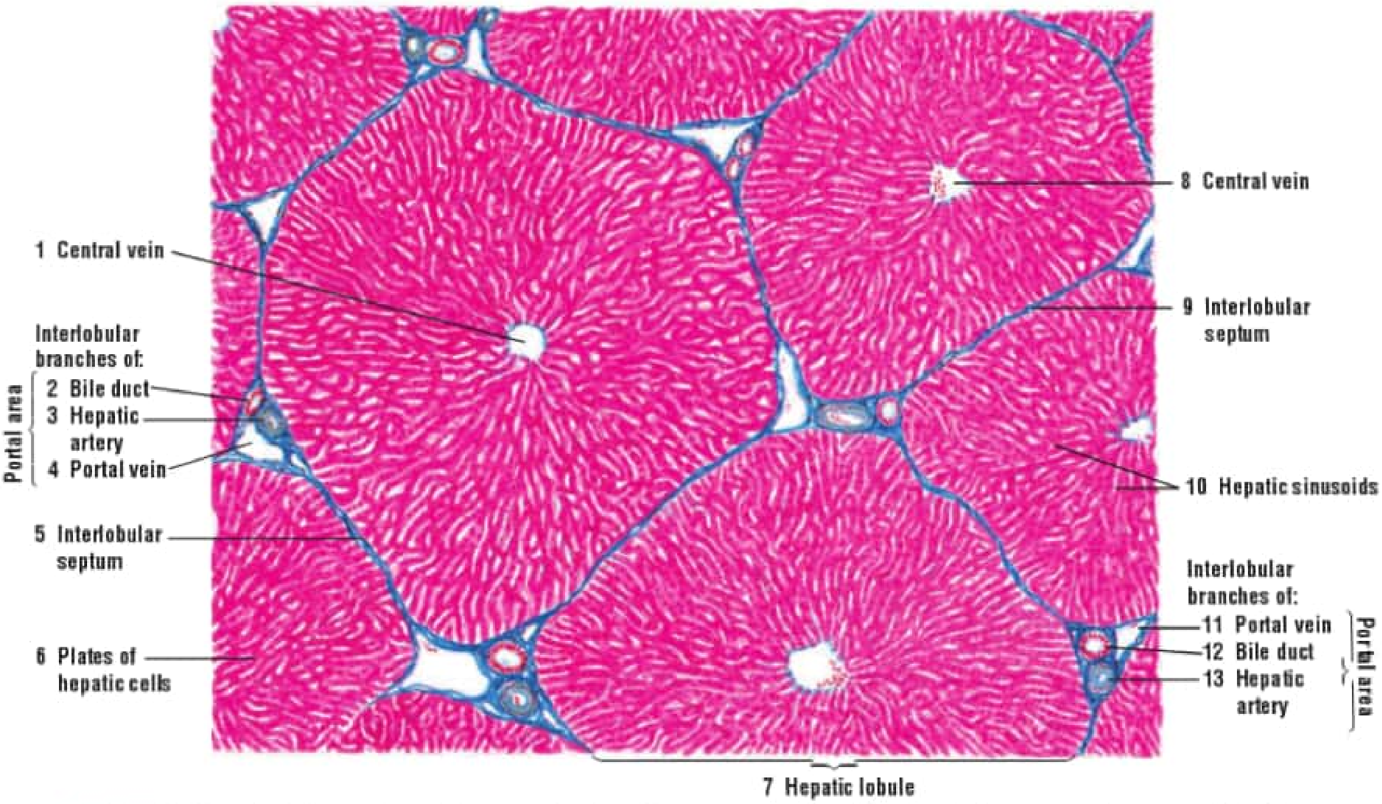

1 Central vein
Interlobular branches of:
2 Bile duct
3 Hepatic artery
4 Portal vein
Portal area
5 Interlobular septum
6 Plates of hepatic cells
7 Hepatic lobule
8 Central vein
9 Interlobular septum
10 Hepatic sinusoids
Interlobular branches of:
11 Portal vein
12 Bile duct
13 Hepatic artery
Portal area

FIGURE 14.1 ■ Pig liver lobules (panoramic view, transverse section). Stain: Mallory-azan. Low magnification.

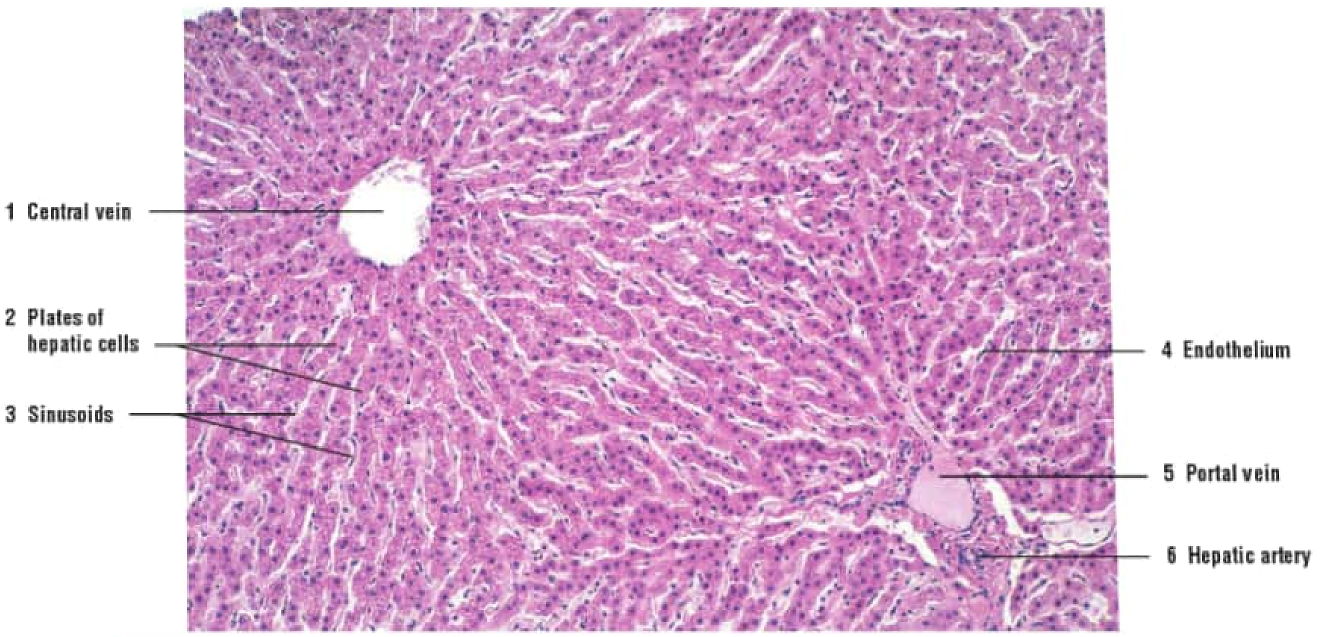

1 Central vein
2 Plates of hepatic cells
3 Sinusoids
4 Endothelium
5 Portal vein
6 Hepatic artery

FIGURE 14.3 ■ Bovine liver: liver lobule (transverse section). Stain: hematoxylin and eosin. ×30.

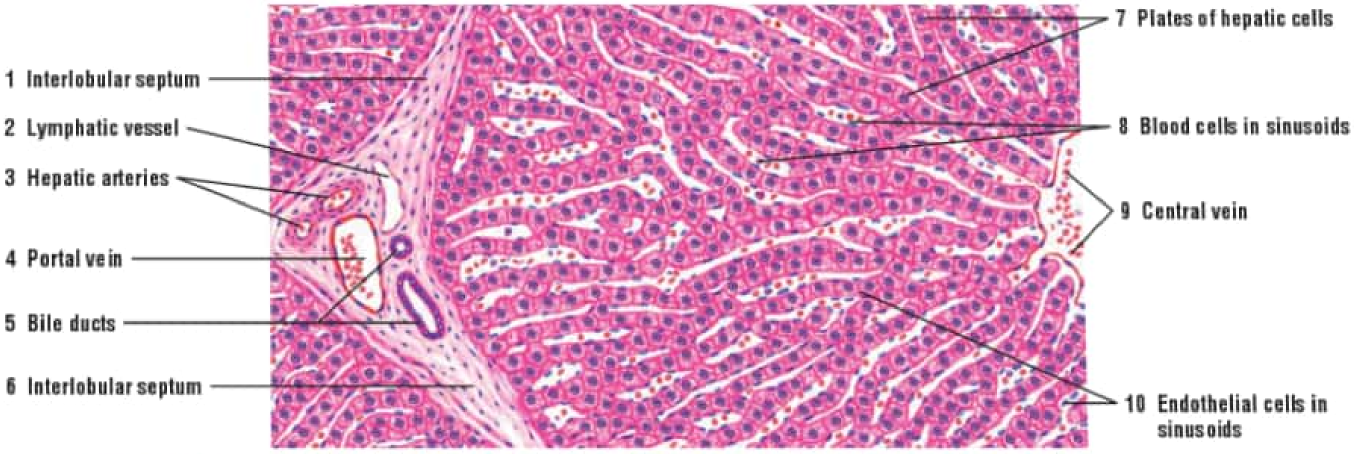

1 Interlobular septum
2 Lymphatic vessel
3 Hepatic arteries
4 Portal vein
5 Bile ducts
6 Interlobular septum
7 Plates of hepatic cells
8 Blood cells in sinusoids
9 Central vein
10 Endothelial cells in sinusoids

FIGURE 14.4 ■ Liver lobule (sectional view, transverse section). Stain: hematoxylin and eosin. High magnification.

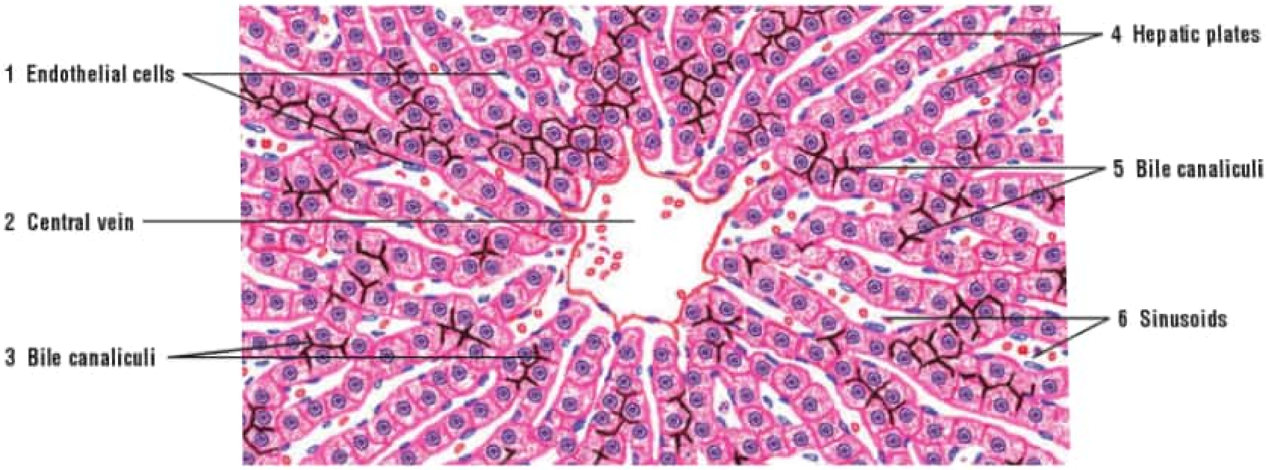

1 Endothelial cells
2 Central vein
3 Bile canaliculi
4 Hepatic plates
5 Bile canaliculi
6 Sinusoids

FIGURE 14.5 ■ Bile canaliculi in liver lobule: osmic acid preparation. Stain: hematoxylin and eosin. High magnification.

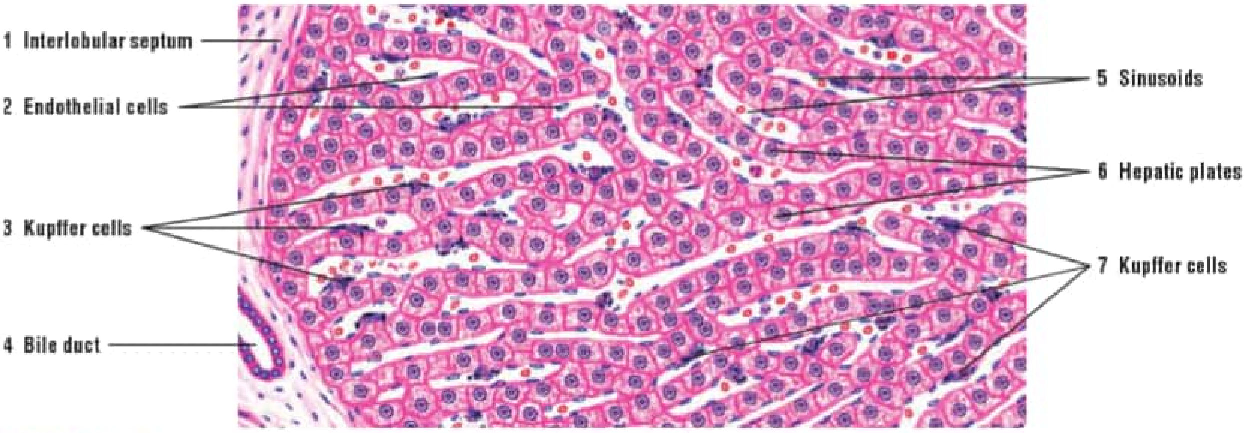

1 Interlobular septum
2 Endothelial cells
3 Kupffer cells
4 Bile duct
5 Sinusoids
6 Hepatic plates
7 Kupffer cells

FIGURE 14.6 ■ Kupffer cells in a liver lobule (India ink preparation). Stain: hematoxylin and eosin. High magnification.

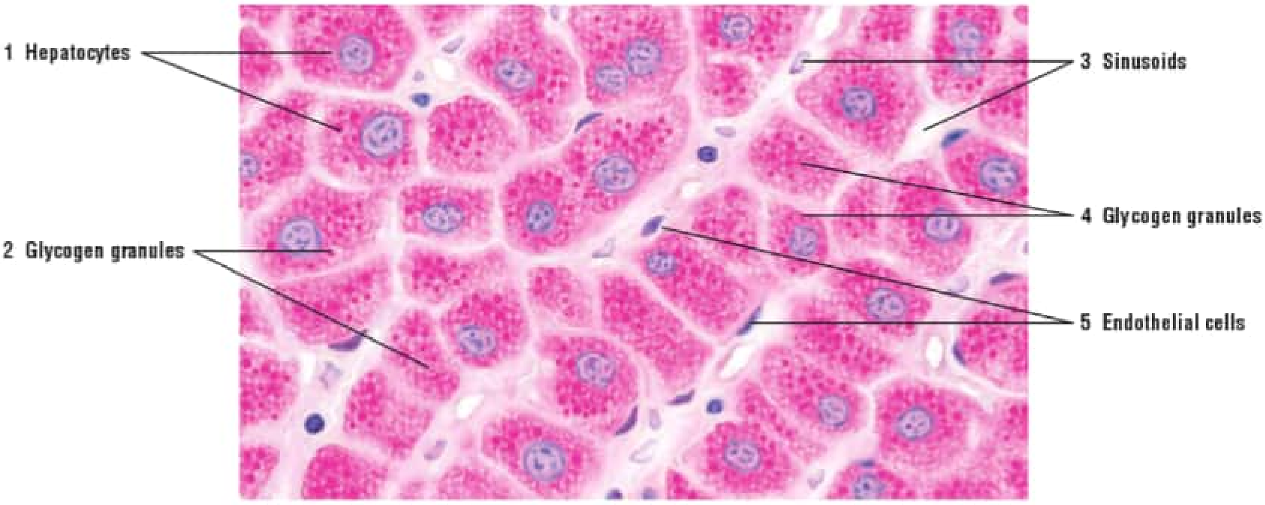

1 Hepatocytes
2 Glycogen granules
3 Sinusoids
4 Glycogen granules
5 Endothelial cells

FIGURE 14.7 ■ Glycogen granules in liver cells. Stain: periodic acid-Schiff with blue counterstain for nuclei. Oil immersion.

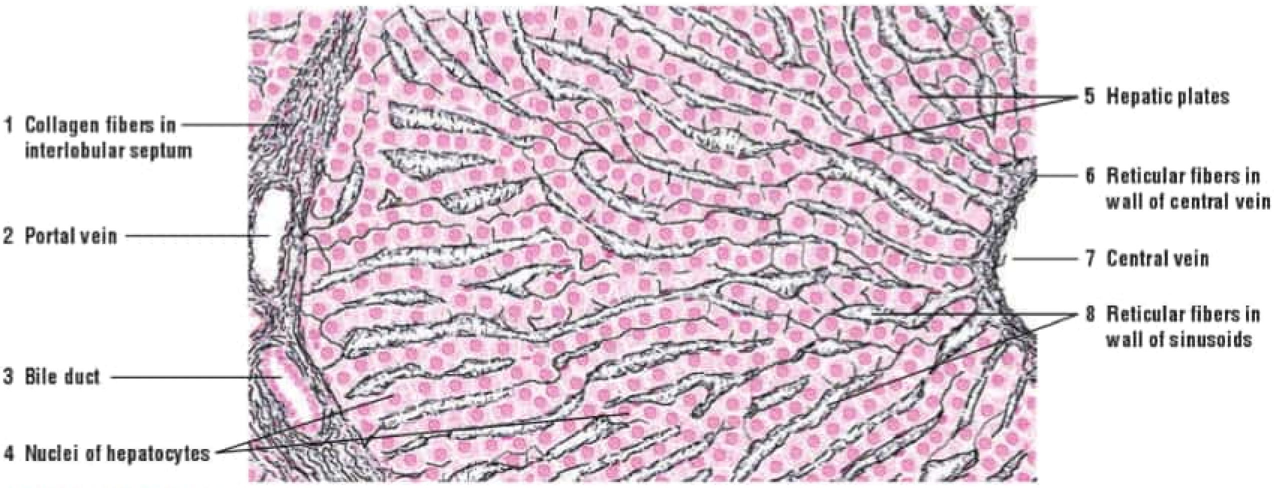

1 Collagen fibers in interlobular septum
2 Portal vein
3 Bile duct
4 Nuclei of hepatocytes
5 Hepatic plates
6 Reticular fibers in wall of central vein
7 Central vein
8 Reticular fibers in wall of sinusoids

FIGURE 14.8 ■ Reticular fibers in the sinusoids of a liver lobule. Stain: reticulin method. Medium magnification.

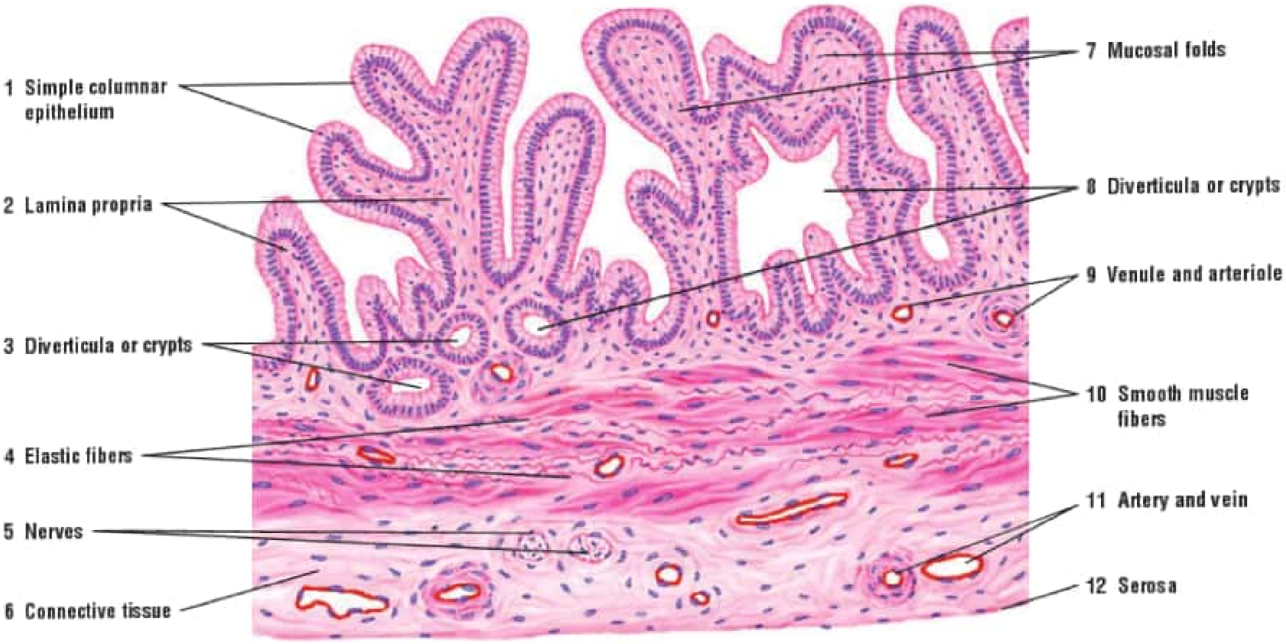

1 Simple columnar epithelium
2 Lamina propria
3 Diverticula or crypts
4 Elastic fibers
5 Nerves
6 Connective tissue
7 Mucosal folds
8 Diverticula or crypts
9 Venule and arteriole
10 Smooth muscle fibers
11 Artery and vein
12 Serosa

FIGURE 14.9 ■ Wall of gallbladder. Stain: hematoxylin and eosin. Low magnification.

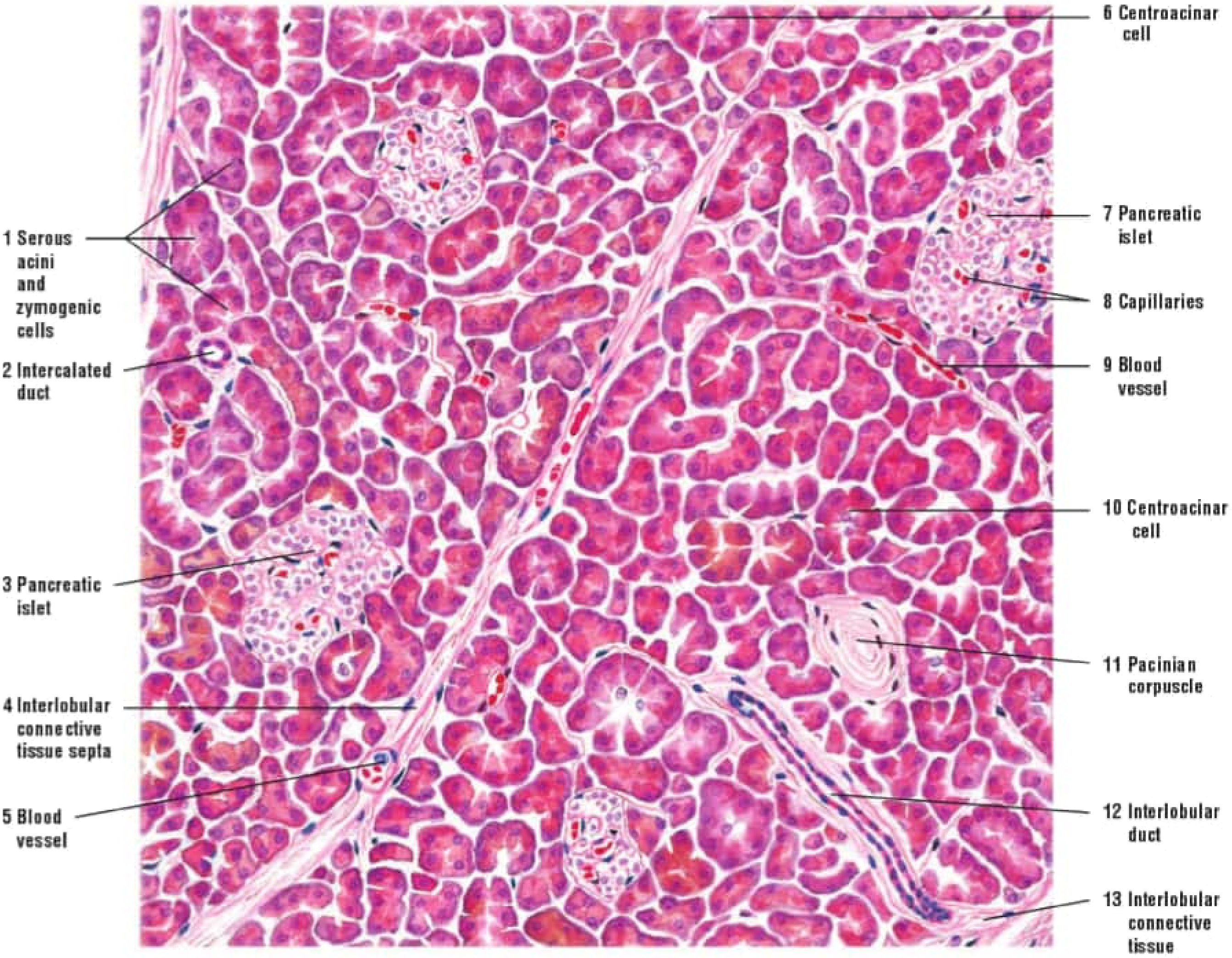

6 Centroacinar cell
1 Serous acini and zymogenic cells
7 Pancreatic islet
8 Capillaries
2 Intercalated duct
9 Blood vessel
10 Centroacinar cell
3 Pancreatic islet
11 Pacinian corpuscle
4 Interlobular connective tissue septa
12 Interlobular duct
5 Blood vessel
13 Interlobular connective tissue

FIGURE 14.10 ■ Exocrine and endocrine pancreas (sectional view). Stain: hematoxylin and eosin. Low magnification.

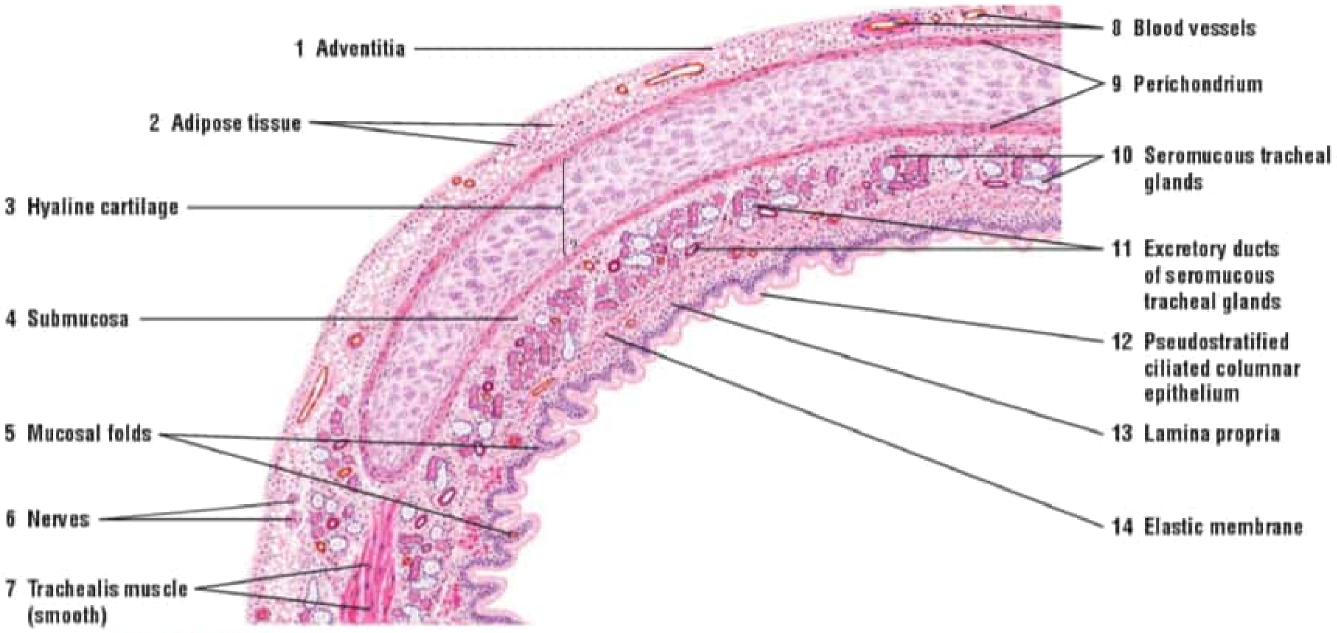

1 Adventitia
2 Adipose tissue
3 Hyaline cartilage
4 Submucosa
5 Mucosal folds
6 Nerves
7 Trachealis muscle (smooth)
8 Blood vessels
9 Perichondrium
10 Seromucous tracheal glands
11 Excretory ducts of seromucous tracheal glands
12 Pseudostratified ciliated columnar epithelium
13 Lamina propria
14 Elastic membrane

FIGURE 15.6 ■ Trachea (transverse section). Stain: hematoxylin and eosin. Low magnification.

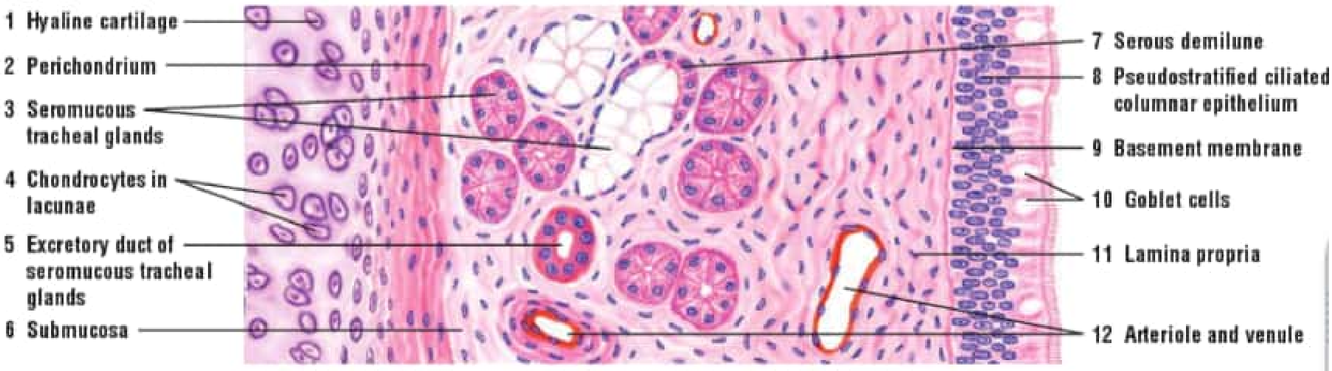

1 Hyaline cartilage
2 Perichondrium
3 Seromucous tracheal glands
4 Chondrocytes in lacunae
5 Excretory duct of seromucous tracheal glands
6 Submucosa
7 Serous demilune
8 Pseudostratified ciliated columnar epithelium
9 Basement membrane
10 Goblet cells
11 Lamina propria
12 Arteriole and venule

FIGURE 15.7 ■ Tracheal wall (sectional view). Stain: hematoxylin and eosin. Medium magnification.

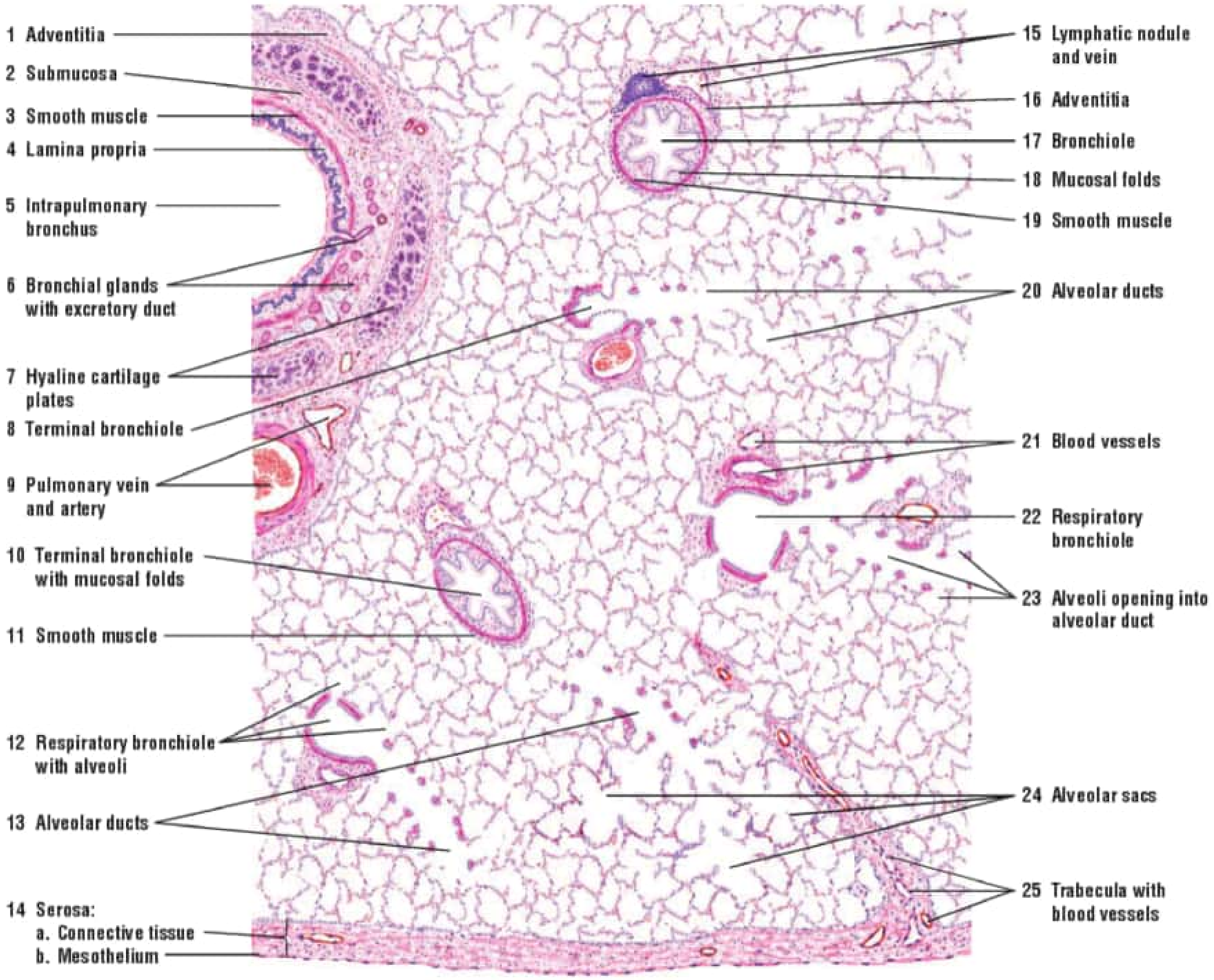

1 Adventitia
2 Submucosa
3 Smooth muscle
4 Lamina propria
5 Intrapulmonary bronchus
6 Bronchial glands with excretory duct
7 Hyaline cartilage plates
8 Terminal bronchiole
9 Pulmonary vein and artery
10 Terminal bronchiole with mucosal folds
11 Smooth muscle
12 Respiratory bronchiole with alveoli
13 Alveolar ducts
14 Serosa:
a. Connective tissue
b. Mesothelium
15 Lymphatic nodule and vein
16 Adventitia
17 Bronchiole
18 Mucosal folds
19 Smooth muscle
20 Alveolar ducts
21 Blood vessels
22 Respiratory bronchiole
23 Alveoli opening into alveolar duct
24 Alveolar sacs
25 Trabecula with blood vessels

FIGURE 15.8 ■ Lung (panoramic view). Stain: hematoxylin and eosin. Low magnification.

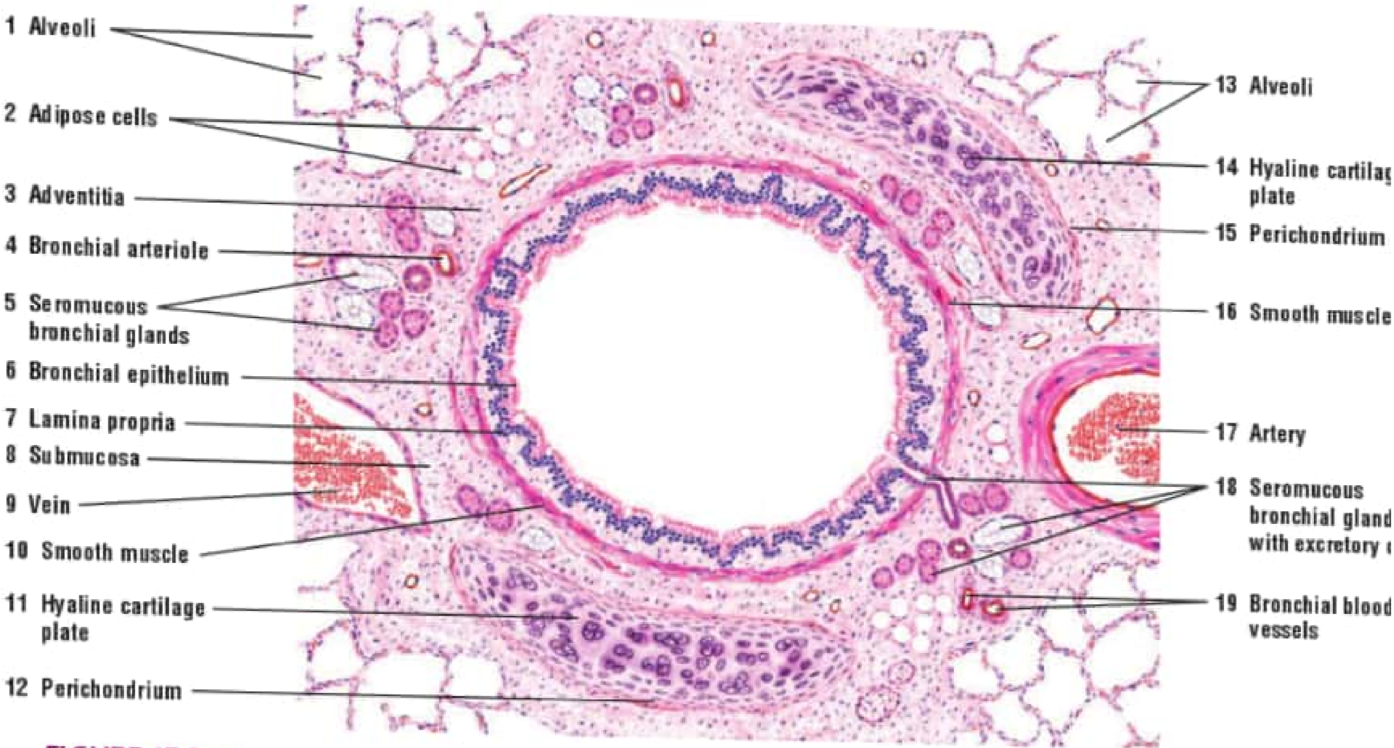

1 Alveoli
2 Adipose cells
3 Adventitia
4 Bronchial arteriole
5 Seromucous bronchial glands
6 Bronchial epithelium
7 Lamina propria
8 Submucosa
9 Vein
10 Smooth muscle
11 Hyaline cartilage plate
12 Perichondrium
13 Alveoli
14 Hyaline cartilag plate
15 Perichondrium
16 Smooth muscle
17 Artery
18 Seromucous bronchial gland with excretory
19 Bronchial blood vessels

FIGURE 15.9 ■ Intrapulmonary bronchus (transverse section). Stain: hematoxylin and eosin. Low magnification.

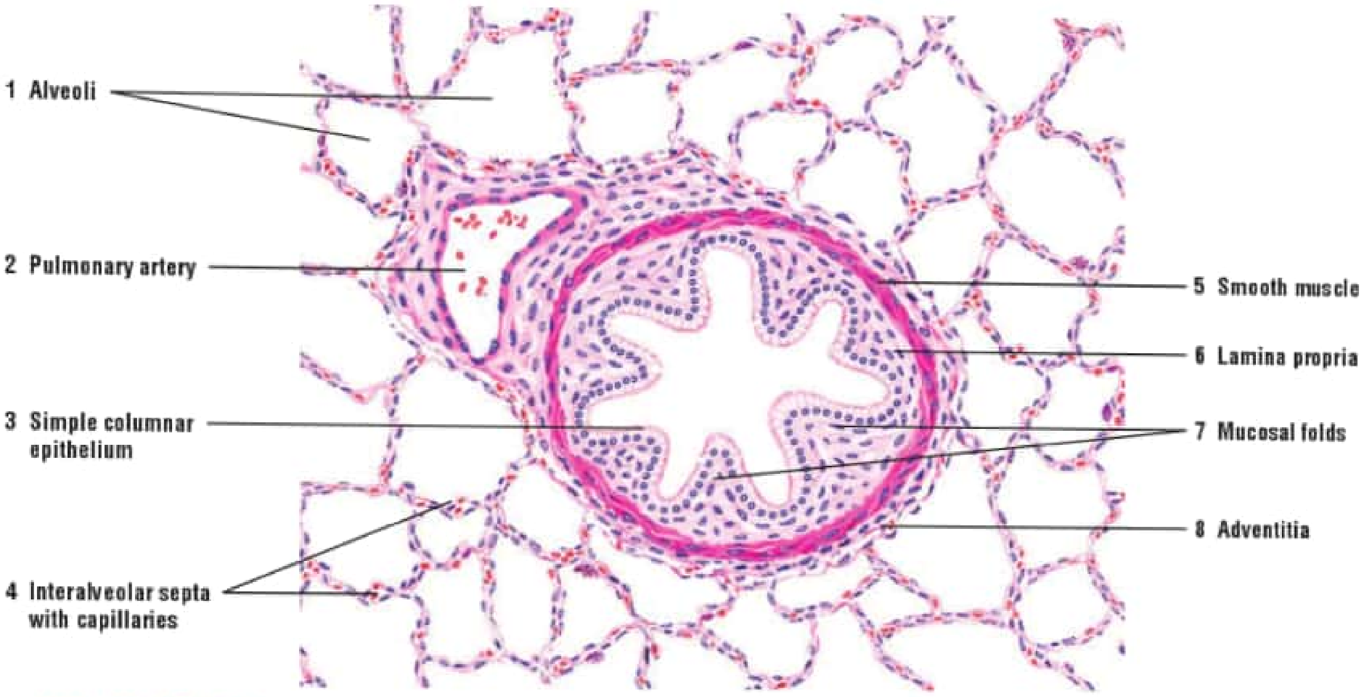

1 Alveoli
2 Pulmonary artery
3 Simple columnar epithelium
4 Interalveolar septa with capillaries
5 Smooth muscle
6 Lamina propria
7 Mucosal folds
8 Adventitia

FIGURE 15.10 ■ Terminal bronchiole (transverse section). Stain: hematoxylin and eosin. Low magnification.

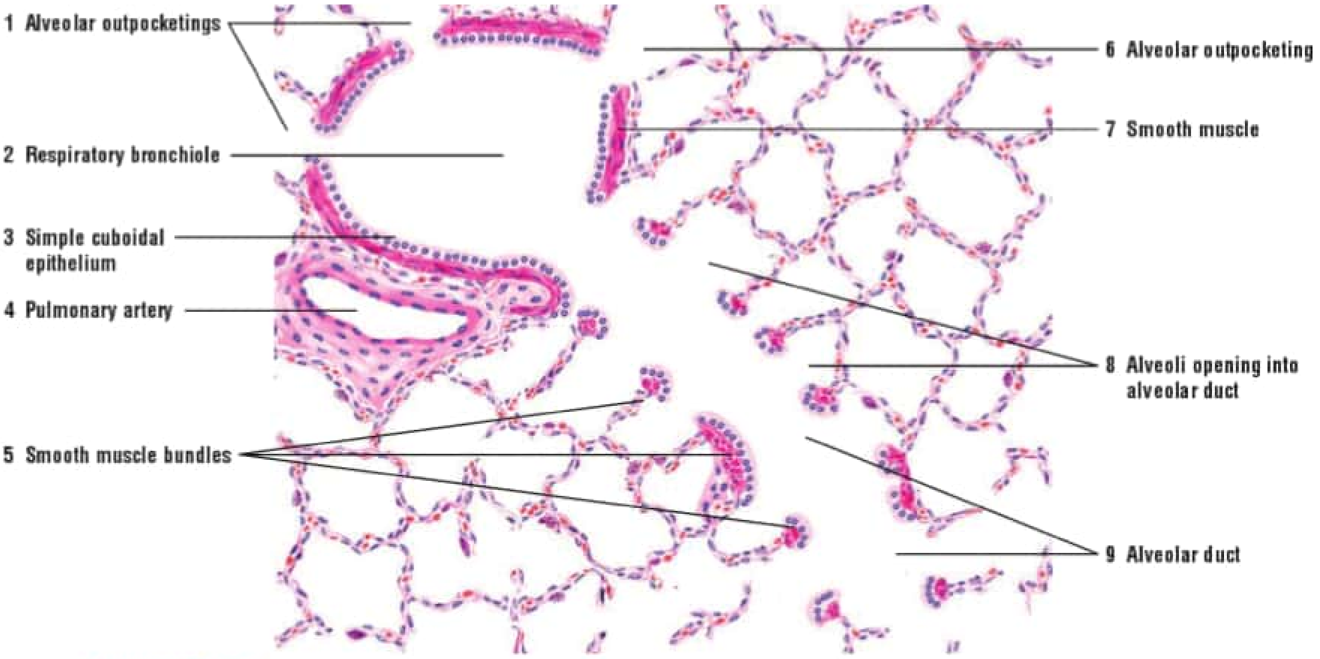

1 Alveolar outpocketings
2 Respiratory bronchiole
3 Simple cuboidal epithelium
4 Pulmonary artery
5 Smooth muscle bundles
6 Alveolar outpocketing
7 Smooth muscle
8 Alveoli opening into alveolar duct
9 Alveolar duct

FIGURE 15.11 ■ Respiratory bronchiole, alveolar duct, and lung alveoli. Stain: hematoxylin and eosin. Low magnification.

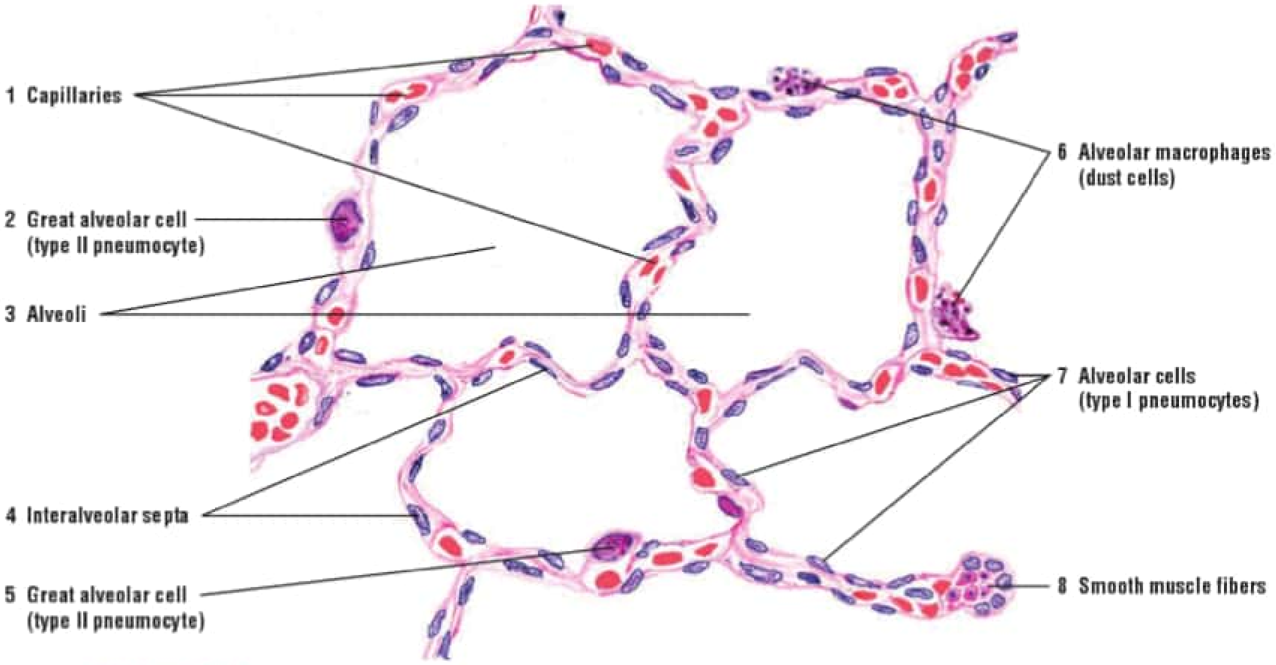

1 Capillaries
2 Great alveolar cell (type II pneumocyte)
3 Alveoli
4 Interalveolar septa
5 Great alveolar cell (type II pneumocyte)
6 Alveolar macrophages (dust cells)
7 Alveolar cells (type I pneumocytes)
8 Smooth muscle fibers

FIGURE 15.12 ■ Alveolar walls and alveolar cells. Stain: hematoxylin and eosin. High magnification.

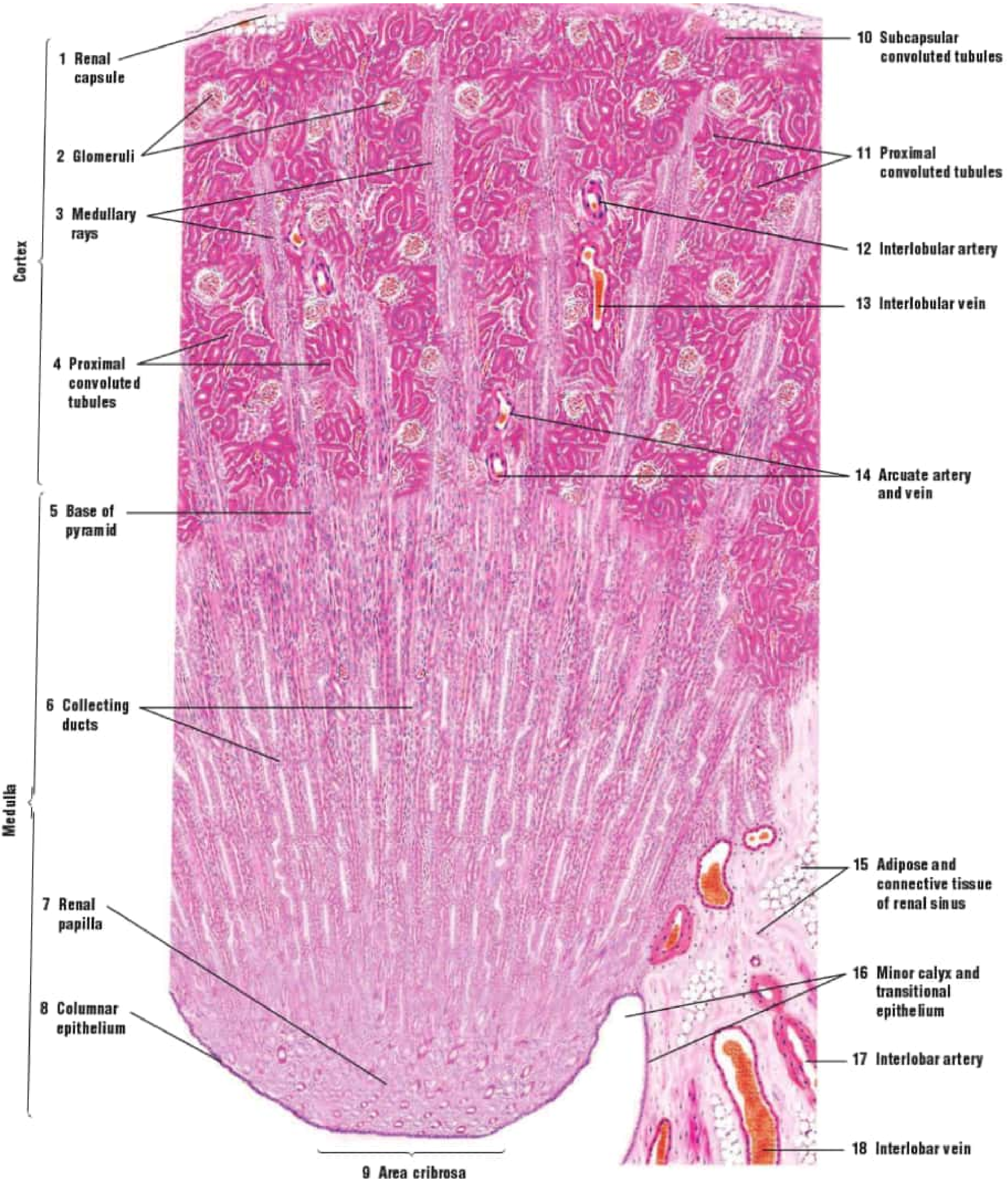

Cortex
Medulla
1 Renal capsule
2 Glomeruli
3 Medullary rays
4 Proximal convoluted tubules
5 Base of pyramid
6 Collecting ducts
7 Renal papilla
8 Columnar epithelium
9 Area cribrosa
10 Subcapsular convoluted tubules
11 Proximal convoluted tubules
12 Interlobular artery
13 Interlobular vein
14 Arcuate artery and vein
15 Adipose and connective tissue of renal sinus
16 Minor calyx and transitional epithelium
17 Interlobar artery
18 Interlobar vein

FIGURE 16.1 ■ Kidney: cortex, medulla, pyramid, and renal papilla (panoramic view). Stain: hematoxylin and eosin. Low magnification.

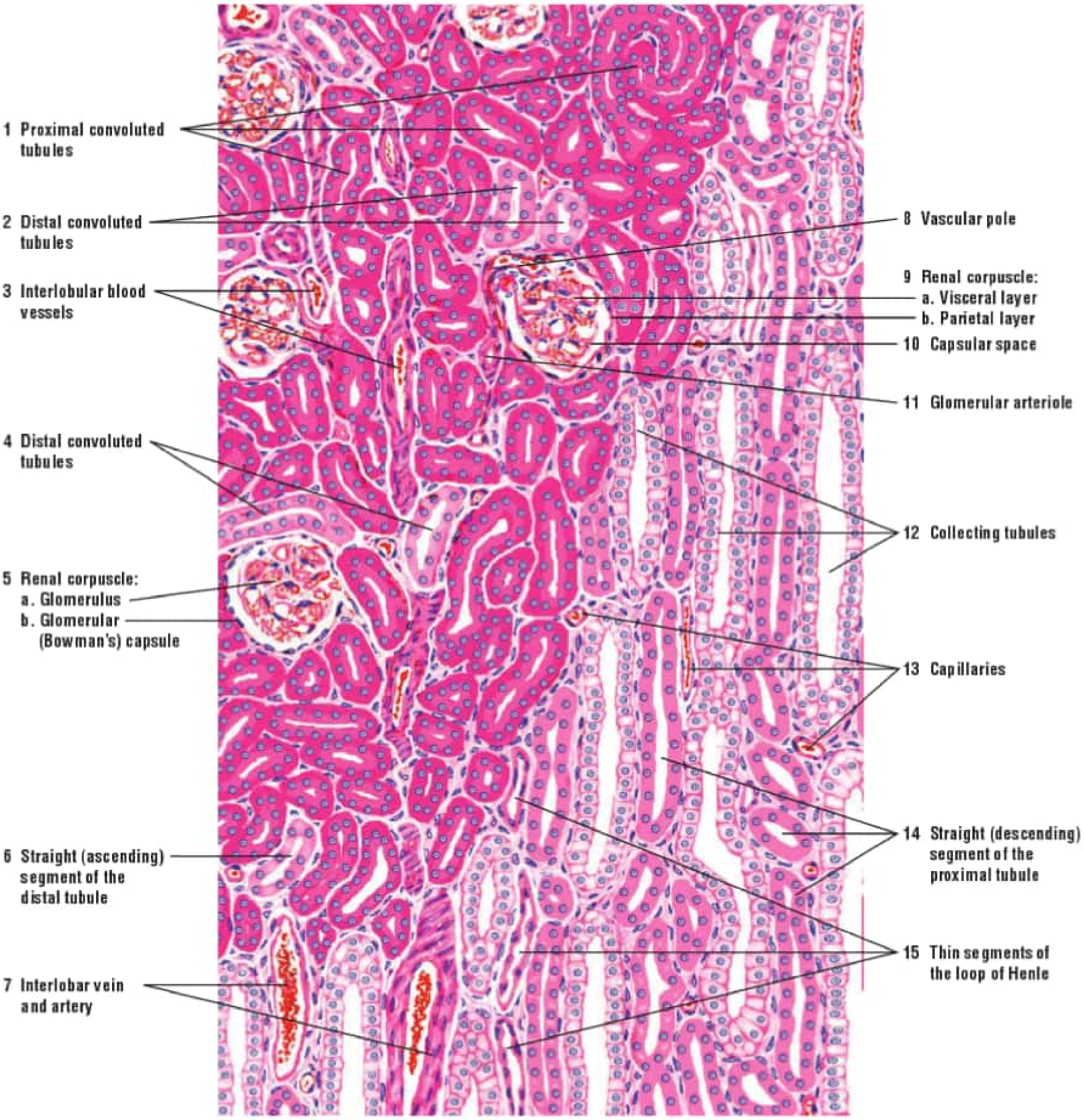

1 Proximal convoluted tubules
2 Distal convoluted tubules
3 Interlobular blood vessels
4 Distal convoluted tubules
5 Renal corpuscle:
a. Glomerulus
b. Glomerular (Bowman's) capsule
6 Straight (ascending) segment of the distal tubule
7 Interlobar vein and artery
8 Vascular pole
9 Renal corpuscle:
a. Visceral layer
b. Parietal layer
10 Capsular space
11 Glomerular arteriole
12 Collecting tubules
13 Capillaries
14 Straight (descending) segment of the proximal tubule
15 Thin segments of the loop of Henle

FIGURE 16.2 ■ Kidney cortex and upper medulla. Stain: hematoxylin and eosin. Low magnification.

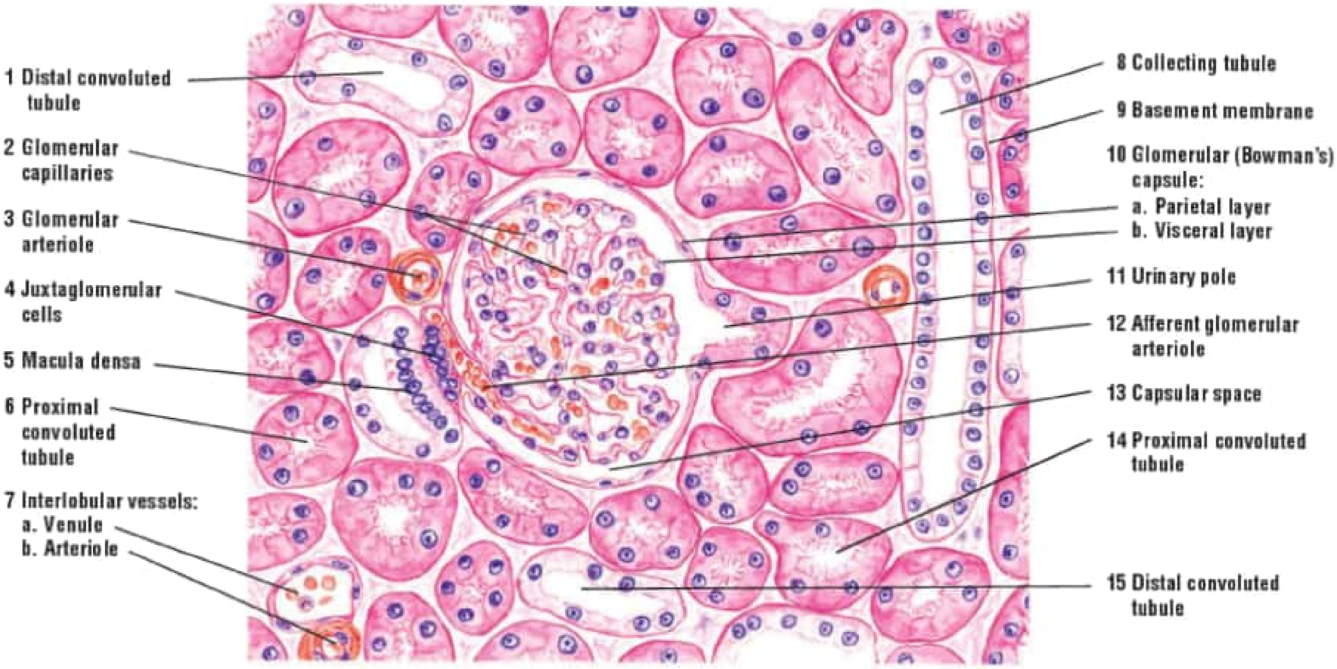

1 Distal convoluted tubule
2 Glomerular capillaries
3 Glomerular arteriole
4 Juxtaglomerular cells
5 Macula densa
6 Proximal convoluted tubule
7 Interlobular vessels:
a. Venule
b. Arteriole
8 Collecting tubule
9 Basement membrane
10 Glomerular (Bowman's) capsule:
a. Parietal layer
b. Visceral layer
11 Urinary pole
12 Afferent glomerular arteriole
13 Capsular space
14 Proximal convoluted tubule
15 Distal convoluted tubule

FIGURE 16.3 ■ Kidney cortex: juxtaglomerular apparatus. Stain: hematoxylin and eosin. Medium magnification.

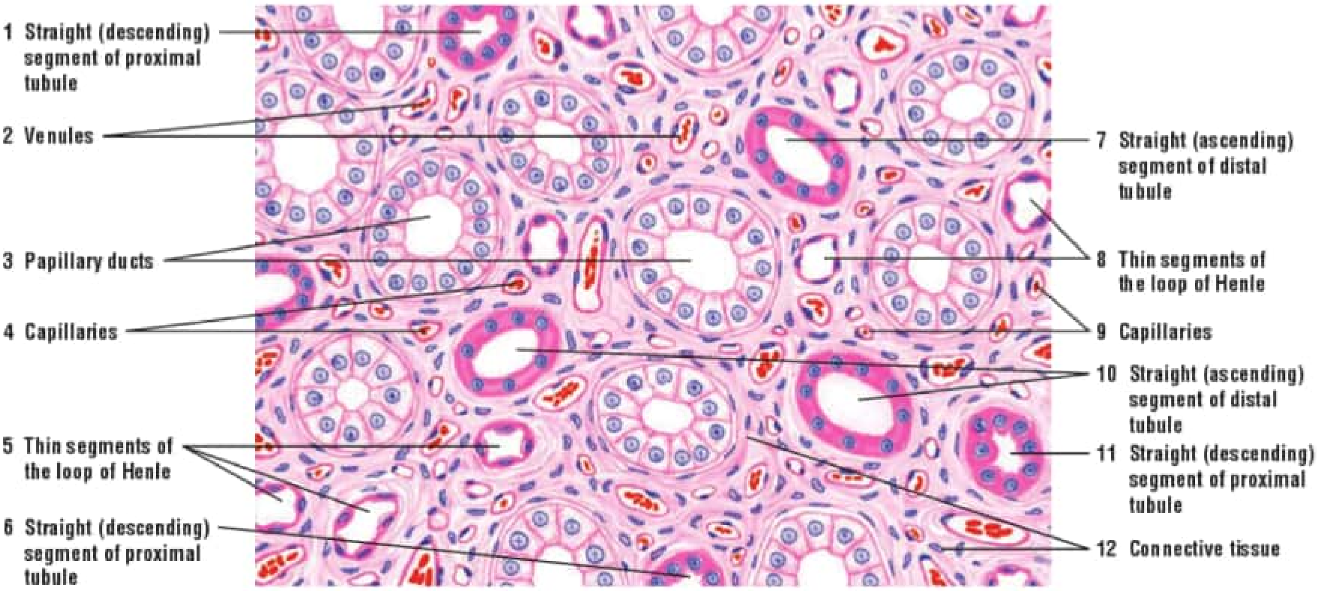

1 Straight (descending) segment of proximal tubule
2 Venules
3 Papillary ducts
4 Capillaries
5 Thin segments of the loop of Henle
6 Straight (descending) segment of proximal tubule
7 Straight (ascending) segment of distal tubule
8 Thin segments of the loop of Henle
9 Capillaries
10 Straight (ascending) segment of distal tubule
11 Straight (descending) segment of proximal tubule
12 Connective tissue

FIGURE 16.7 ■ Kidney medulla: papillary region (transverse section). Stain: hematoxylin and eosin. Medium magnification.

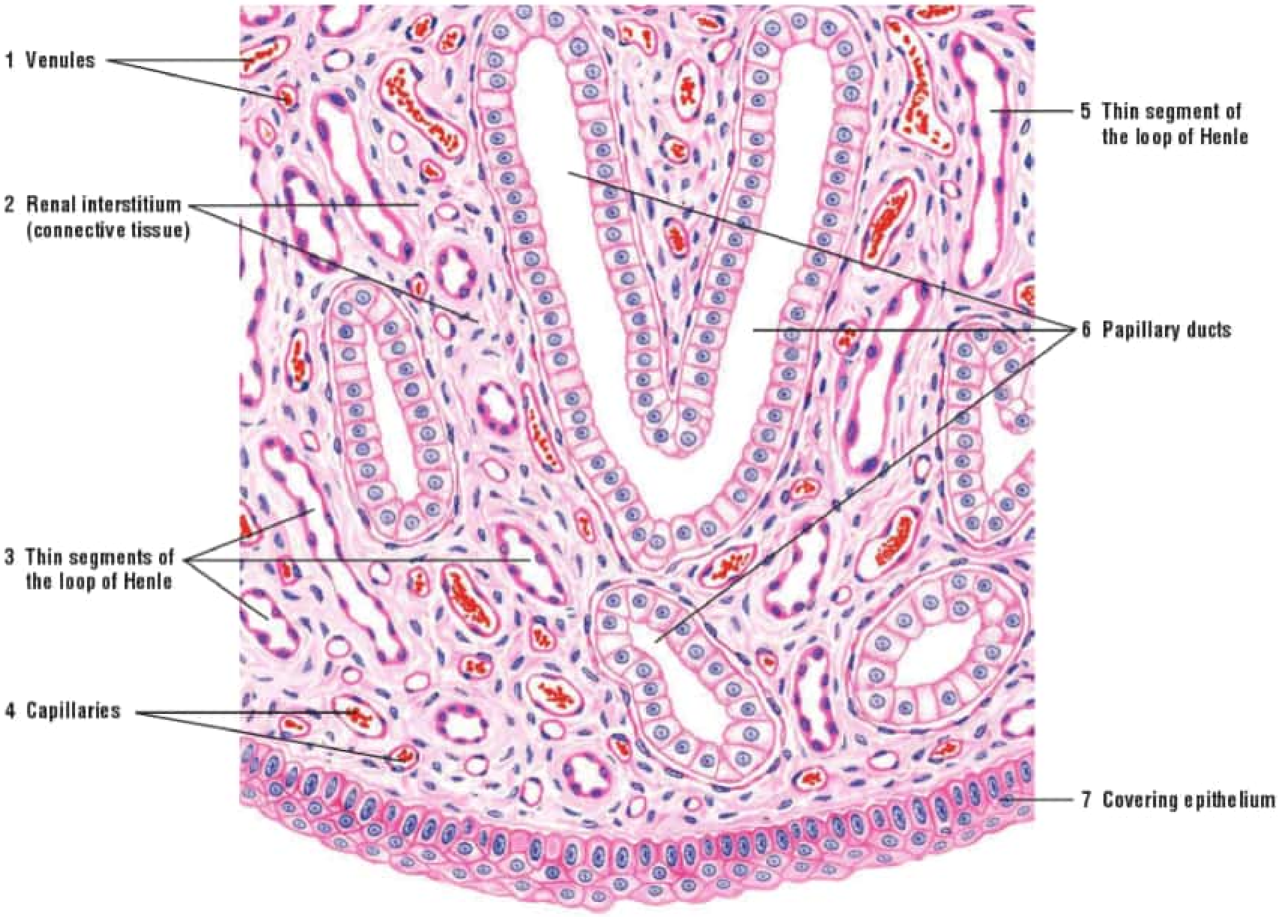

1 Venules
2 Renal interstitium (connective tissue)
3 Thin segments of the loop of Henle
4 Capillaries
5 Thin segment of the loop of Henle
6 Papillary ducts
7 Covering epithelium

FIGURE 16.8 ■ Kidney medulla: terminal end of papilla (longitudinal section). Stain: hematoxylin and eosin. Medium magnification.

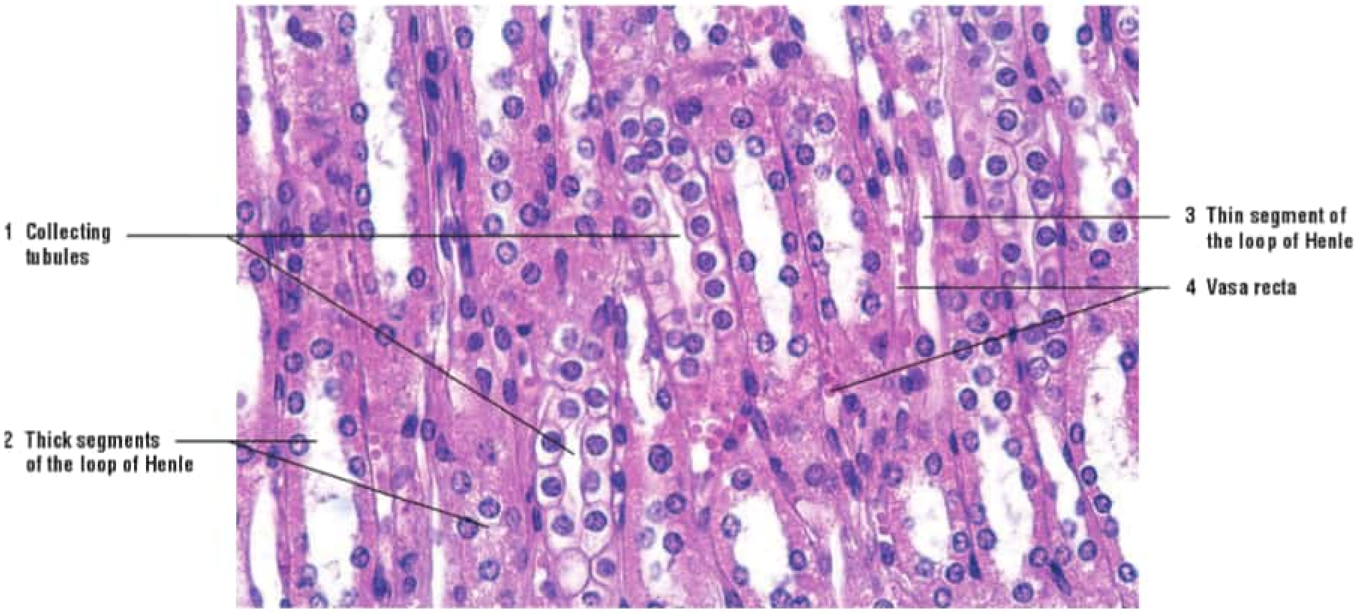

1 Collecting tubules
2 Thick segments of the loop of Henle
3 Thin segment of the loop of Henle
4 Vasa recta

FIGURE 16.9 ■ Kidney: ducts of medullary region (longitudinal section). Stain: hematoxylin and eosin. × 130.

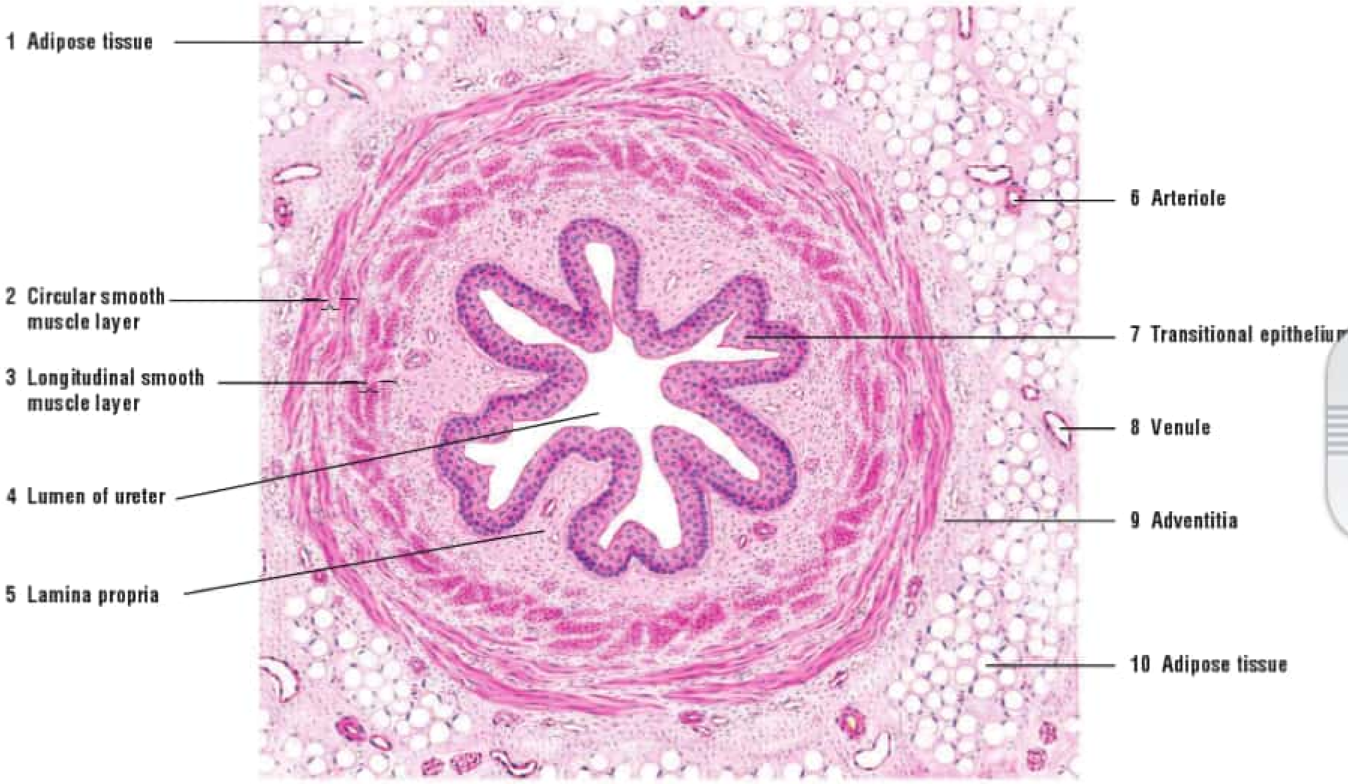

1 Adipose tissue
2 Circular smooth muscle layer
3 Longitudinal smooth muscle layer
4 Lumen of ureter
5 Lamina propria
6 Arteriole
7 Transitional epitheliu
8 Venule
9 Adventitia
10 Adipose tissue

FIGURE 16.10 ■ Urinary system: ureter (transverse section). Stain: hematoxylin and eosin. Low magnification.

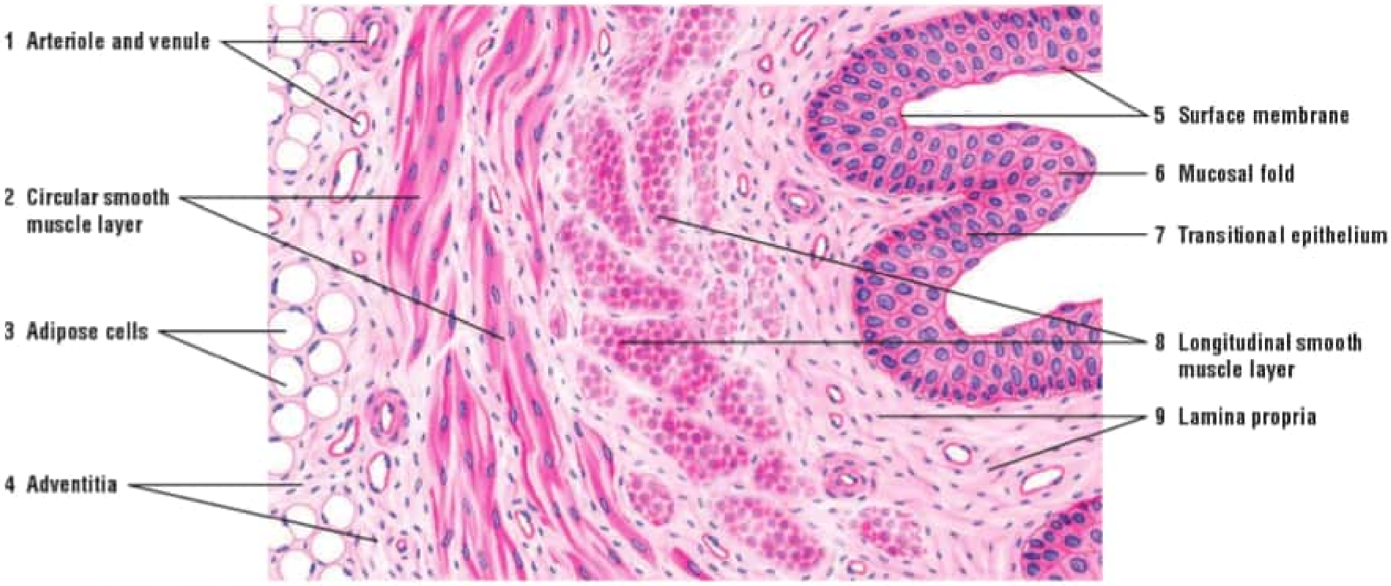

1 Arteriole and venule
2 Circular smooth muscle layer
3 Adipose cells
4 Adventitia
5 Surface membrane
6 Mucosal fold
7 Transitional epithelium
8 Longitudinal smooth muscle layer
9 Lamina propria

FIGURE 16.11 ■ Section of a ureter wall (transverse section). Stain: hematoxylin and eosin. Medium magnification.

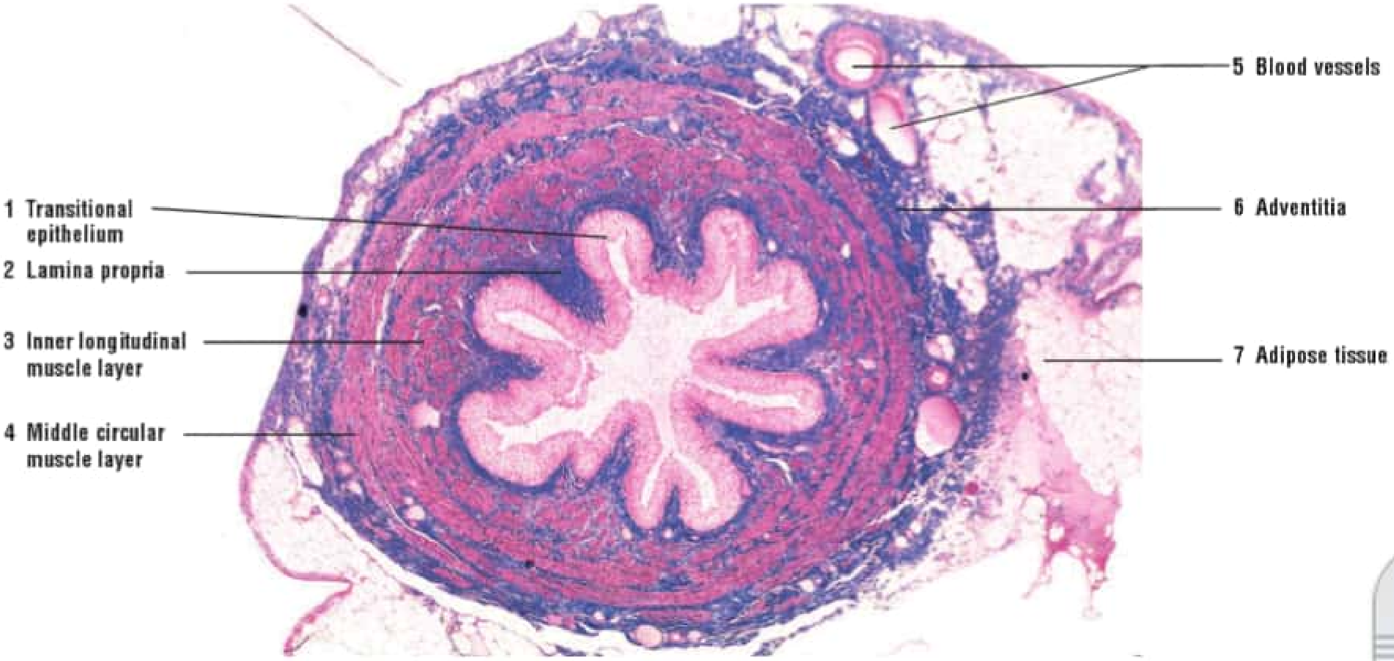

1 Transitional epithelium
2 Lamina propria
3 Inner longitudinal muscle layer
4 Middle circular muscle layer
5 Blood vessels
6 Adventitia
7 Adipose tissue

FIGURE 16.12 ■ Ureter (transverse section). Stain: iron hematoxylin and Alcian blue (IHAB). ×10.

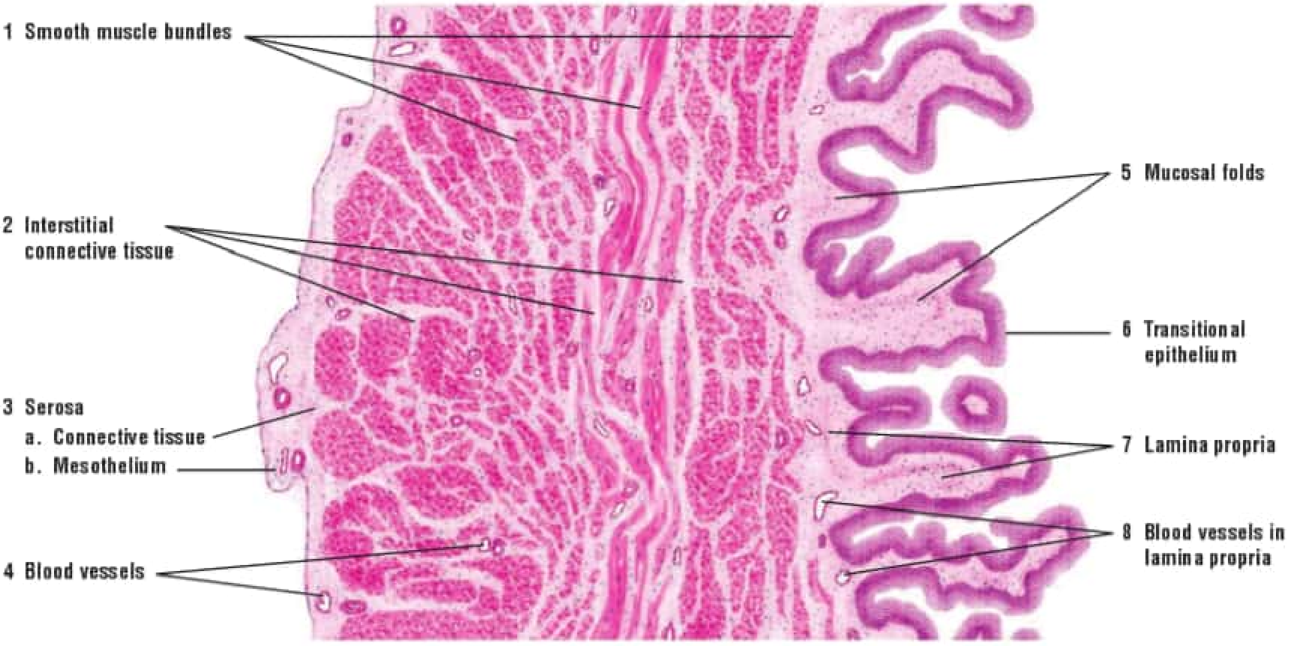

1 Smooth muscle bundles
2 Interstitial connective tissue
3 Serosa
a. Connective tissue
b. Mesothelium
4 Blood vessels
5 Mucosal folds
6 Transitional epithelium
7 Lamina propria
8 Blood vessels in lamina propria

FIGURE 16.13 ■ Urinary bladder: wall (transverse section). Stain: hematoxylin and eosin. Low magnification.

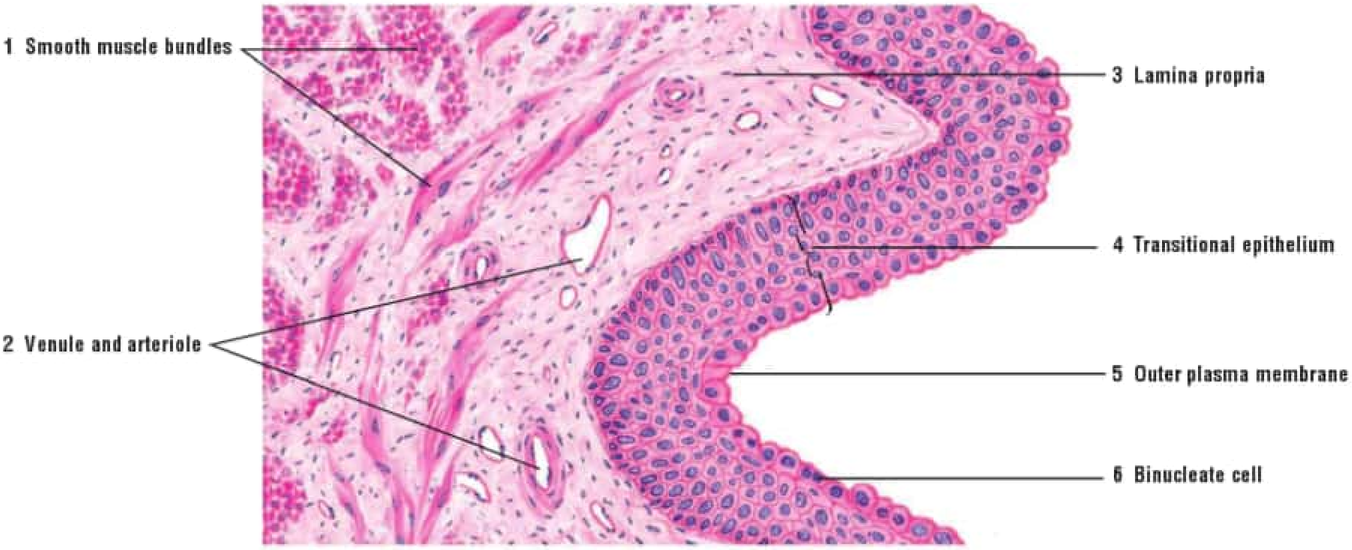

1 Smooth muscle bundles
2 Venule and arteriole
3 Lamina propria
4 Transitional epithelium
5 Outer plasma membrane
6 Binucleate cell

FIGURE 16.14 ■ Urinary bladder: contracted mucosa (transverse section). Stain: hematoxylin and eosin. Medium magnification.

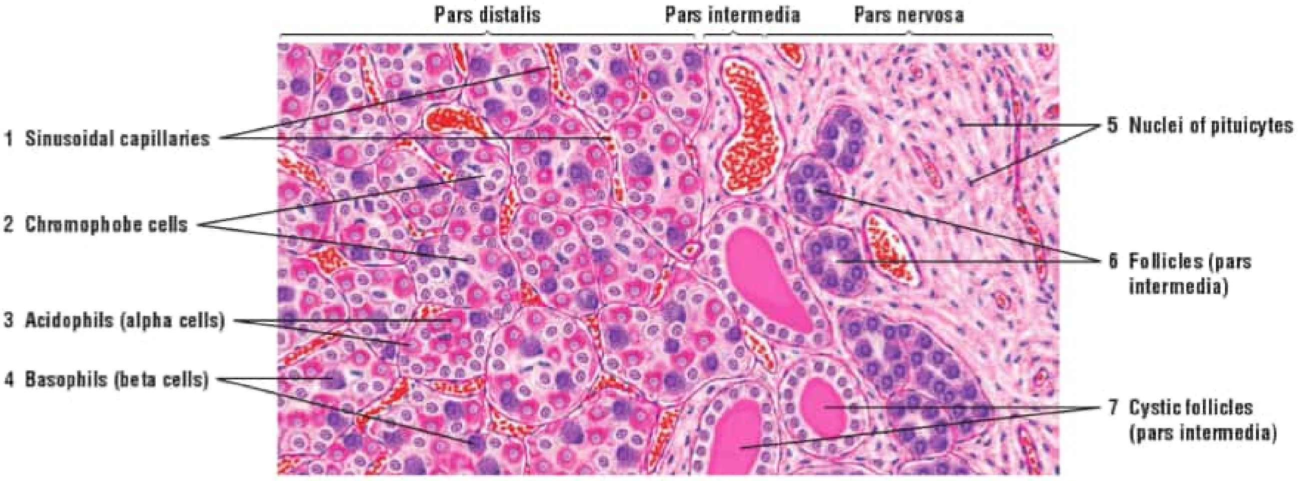

Pars distalis
Pars intermedia
Pars nervosa
1 Sinusoidal capillaries
2 Chromophobe cells
3 Acidophils (alpha cells)
4 Basophils (beta cells)
5 Nuclei of pituicytes
6 Follicles (pars intermedia)
7 Cystic follicles (pars intermedia)

FIGURE 17.2 ■ Hypophysis: sections of pars distalis, pars intermedia, and pars nervosa. Stain: hematoxylin and eosin. Medium magnification.

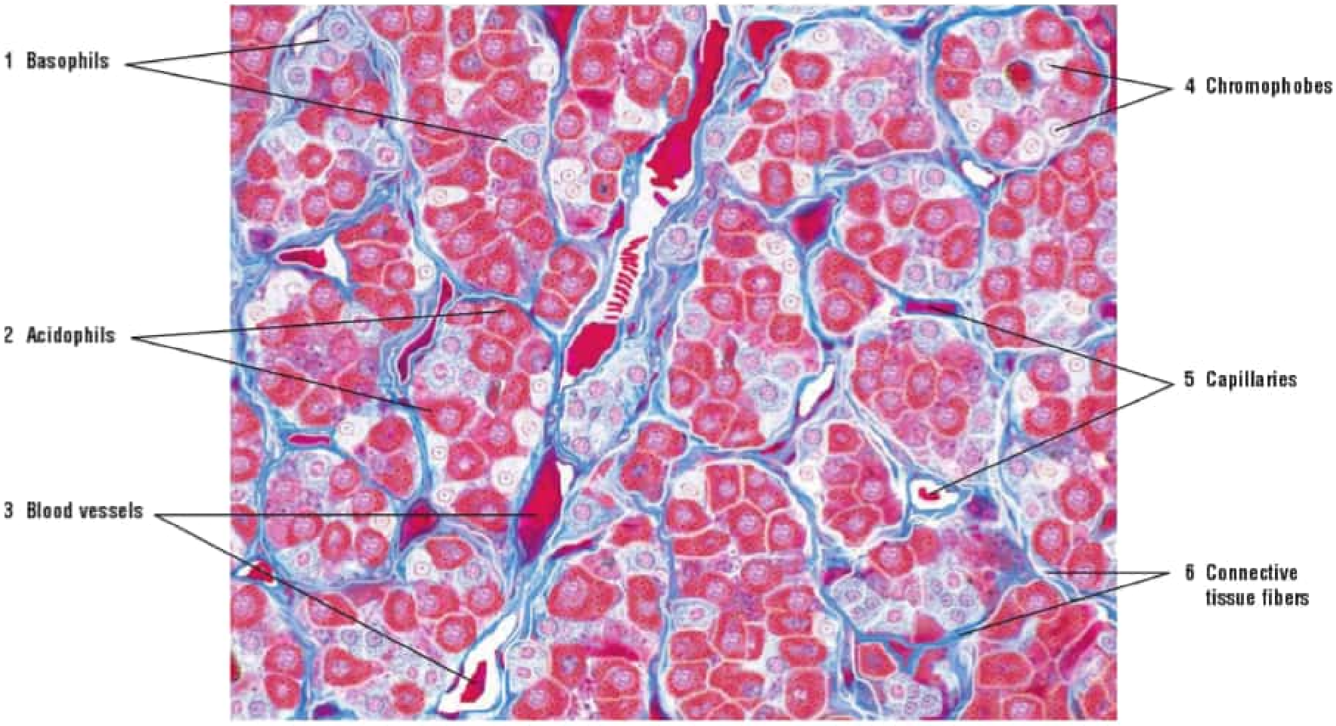

1 Basophils
2 Acidophils
3 Blood vessels
4 Chromophobes
5 Capillaries
6 Connective tissue fibers

FIGURE 17.3 ■ Pars distalis of adenohypophysis: acidophils, basophils, and chromophobes. Stain: azan. High magnification.

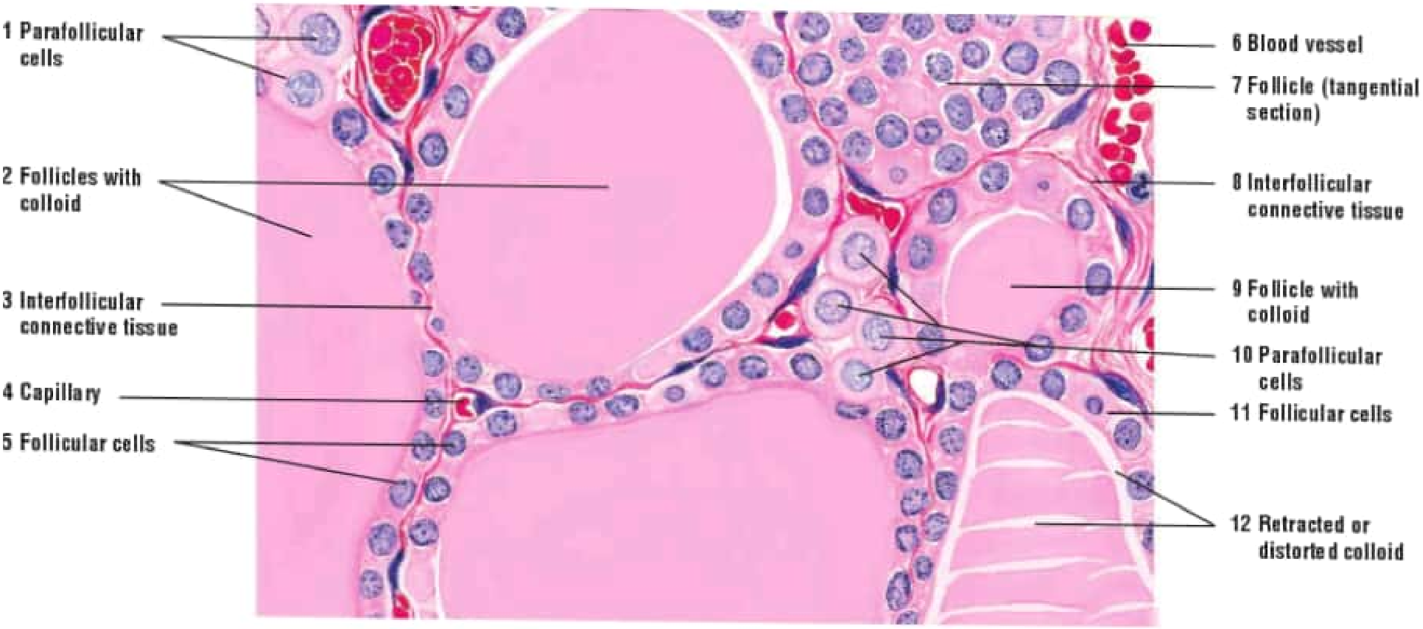

1 Parafollicular cells
2 Follicles with colloid
3 Interfollicular connective tissue
4 Capillary
5 Follicular cells
6 Blood vessel
7 Follicle (tangential section)
8 Interfollicular connective tissue
9 Follicle with colloid
10 Parafollicular cells
11 Follicular cells
12 Retracted or distorted colloid

FIGURE 17.7 ■ Thyroid gland follicles, follicular cells, and parafollicular cells (sectional view). Stain: hematoxylin and eosin. High magnification.

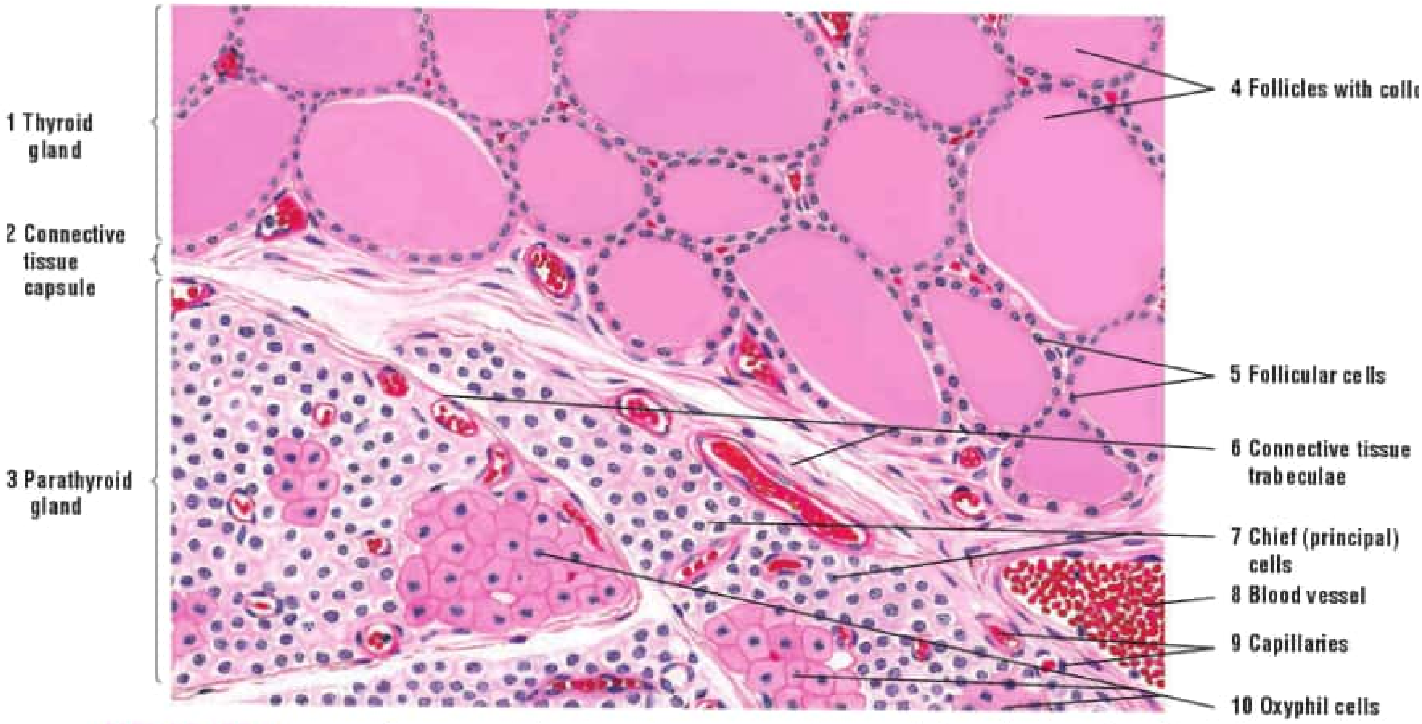

1 Thyroid gland
2 Connective tissue capsule
3 Parathyroid gland
4 Follicles with coll
5 Follicular cells
6 Connective tissue trabeculae
7 Chief (principal) cells
8 Blood vessel
9 Capillaries
10 Oxyphil cells

FIGURE 17.8 ■ Thyroid and parathyroid glands: canine (sectional view). Stain: hematoxylin and eosin. Low magnification.

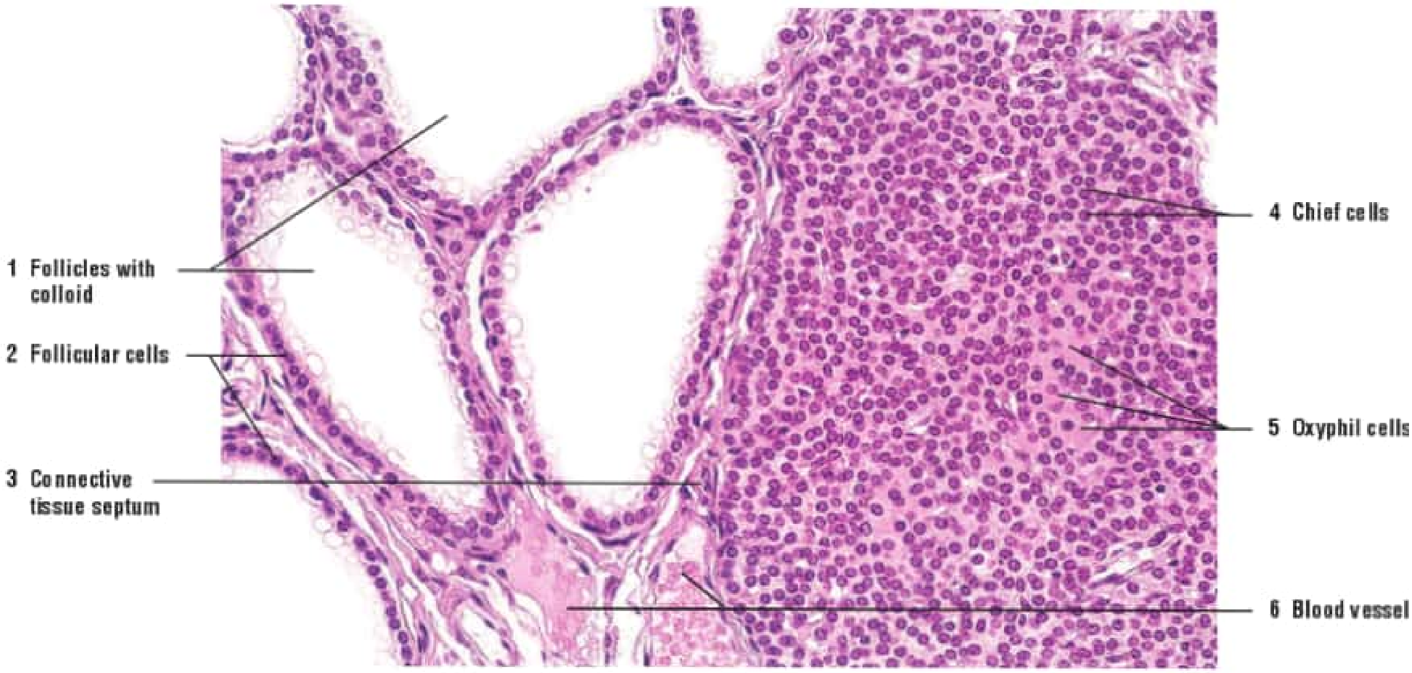

1 Follicles with colloid
2 Follicular cells
3 Connective tissue septum
4 Chief cells
5 Oxyphil cells
6 Blood vessel

FIGURE 17.9 ■ Thyroid gland and parathyroid gland. Stain: hematoxylin and eosin. ×80.

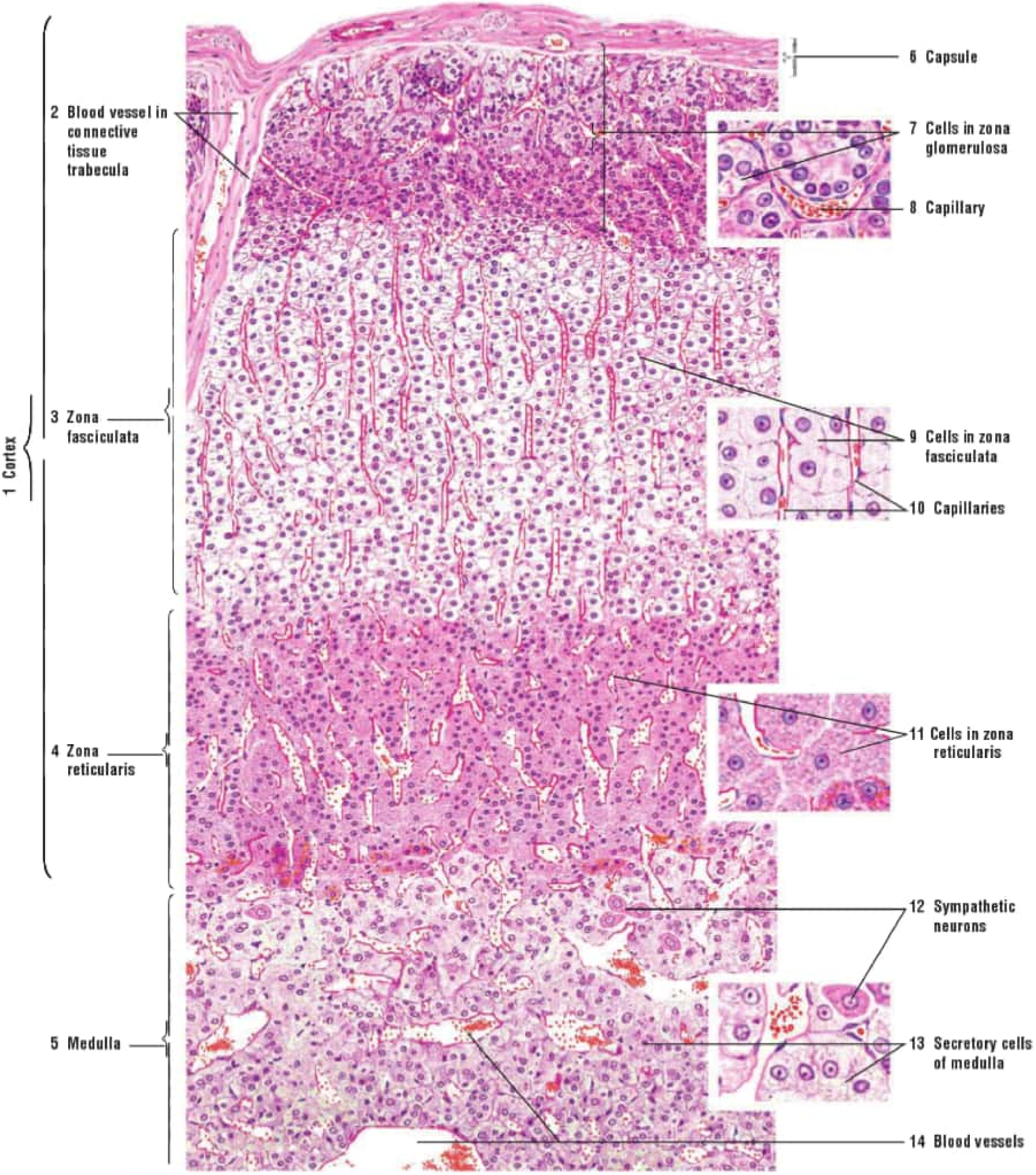

1 Cortex
2 Blood vessel in connective tissue trabecula
3 Zona fasciculata
4 Zona reticularis
5 Medulla
6 Capsule
7 Cells in zona glomerulosa
8 Capillary
9 Cells in zona fasciculata
10 Capillaries
11 Cells in zona reticularis
12 Sympathetic neurons
13 Secretory cells of medulla
14 Blood vessels

FIGURE 17.10 ■ Cortex and medulla of adrenal (suprarenal) gland. Stain: hematoxylin and eosin. Low magnification.

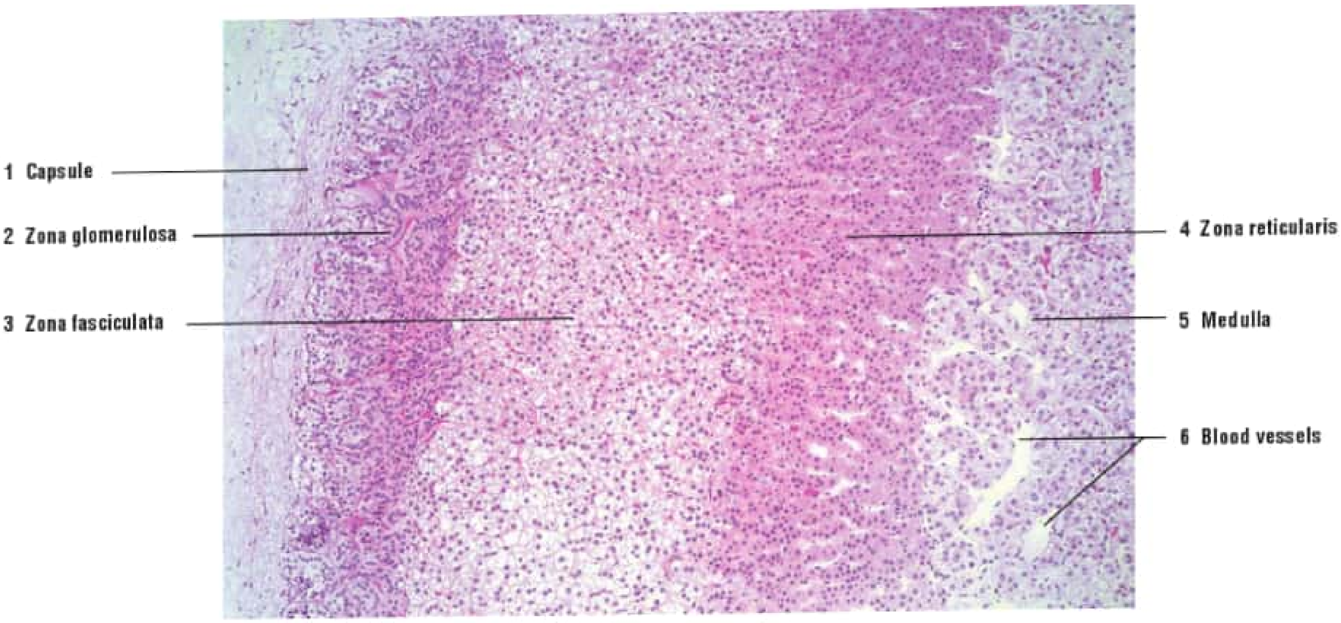

1 Capsule
2 Zona glomerulosa
3 Zona fasciculata
4 Zona reticularis
5 Medulla
6 Blood vessels

FIGURE 17.11 ■ Adrenal (suprarenal) gland: cortex and medulla. Stain: hematoxylin and eosin. ×25

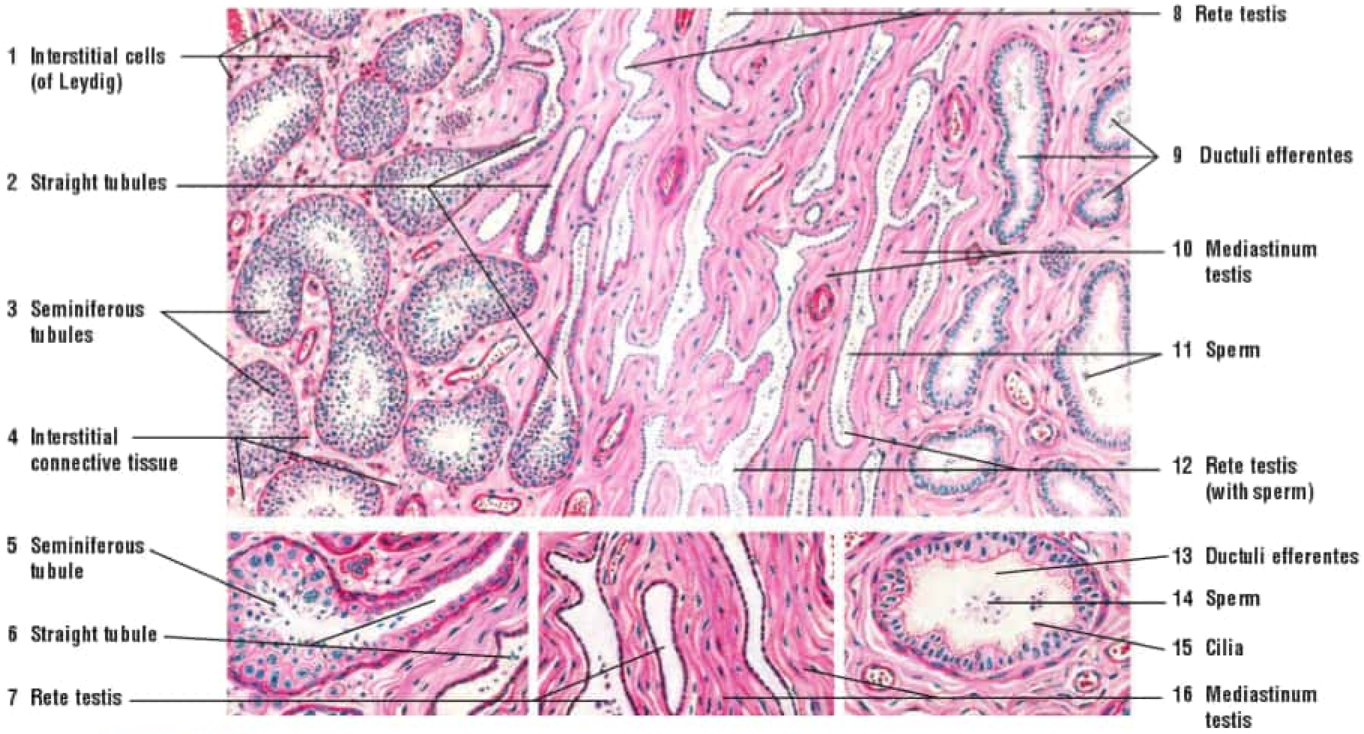

1 Interstitial cells (of Leydig)
2 Straight tubules
3 Seminiferous tubules
4 Interstitial connective tissue
5 Seminiferous tubule
6 Straight tubule
7 Rete testis
8 Rete testis
9 Ductuli efferentes
10 Mediastinum testis
11 Sperm
12 Rete testis (with sperm)
13 Ductuli efferentes
14 Sperm
15 Cilia
16 Mediastinum testis

FIGURE 18.2 ■ Seminiferous tubules, straight tubules, rete testis, and efferent ductules (ductuli efferentes). Stain: hematoxylin and eosin. Low magnification (inset: high magnification).

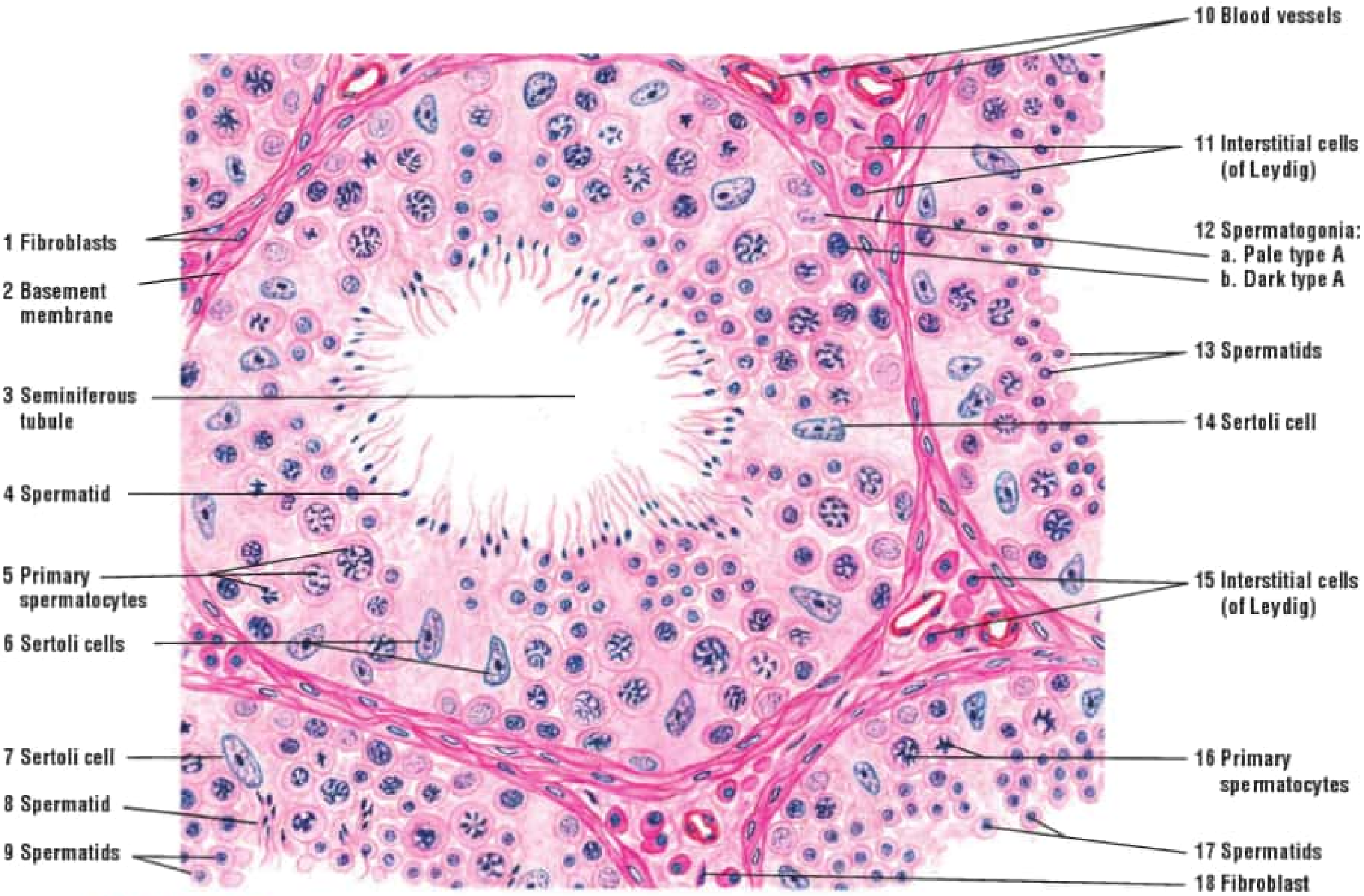

10 Blood vessels
11 Interstitial cells (of Leydig)
12 Spermatogonia:
a. Pale type A
b. Dark type A
13 Spermatids
14 Sertoli cell
15 Interstitial cells (of Leydig)
16 Primary spermatocytes
17 Spermatids
18 Fibroblast
1 Fibroblasts
2 Basement membrane
3 Seminiferous tubule
4 Spermatid
5 Primary spermatocytes
6 Sertoli cells
7 Sertoli cell
8 Spermatid
9 Spermatids

FIGURE 18.3 ■ Primate testis: spermatogenesis in seminiferous tubules (transverse section). Stain: hematoxylin and eosin. Medium magnification.

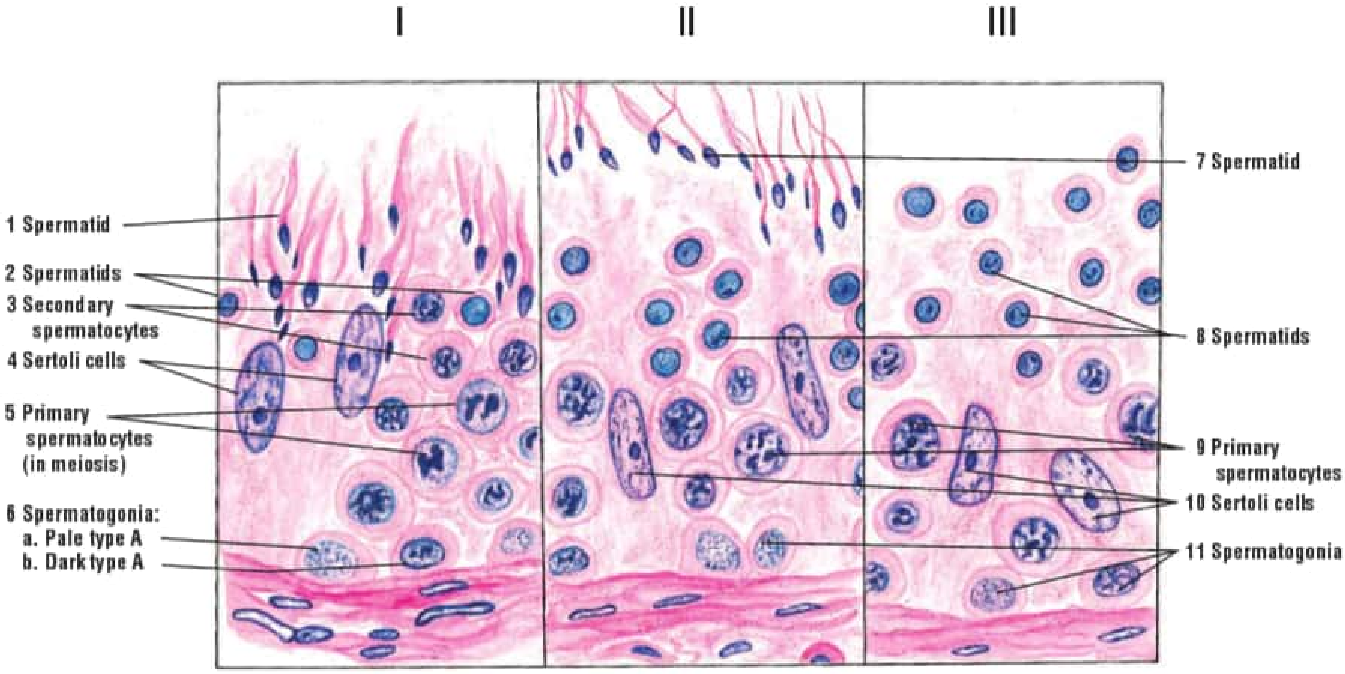

I
II
III
1 Spermatid
2 Spermatids
3 Secondary spermatocytes
4 Sertoli cells
5 Primary spermatocytes (in meiosis)
6 Spermatogonia:
a. Pale type A
b. Dark type A
7 Spermatid
8 Spermatids
9 Primary spermatocytes
10 Sertoli cells
11 Spermatogonia

FIGURE 18.4 ■ Primate testis: different stages of spermatogenesis. Stain: hematoxylin and eosin. High magnification.

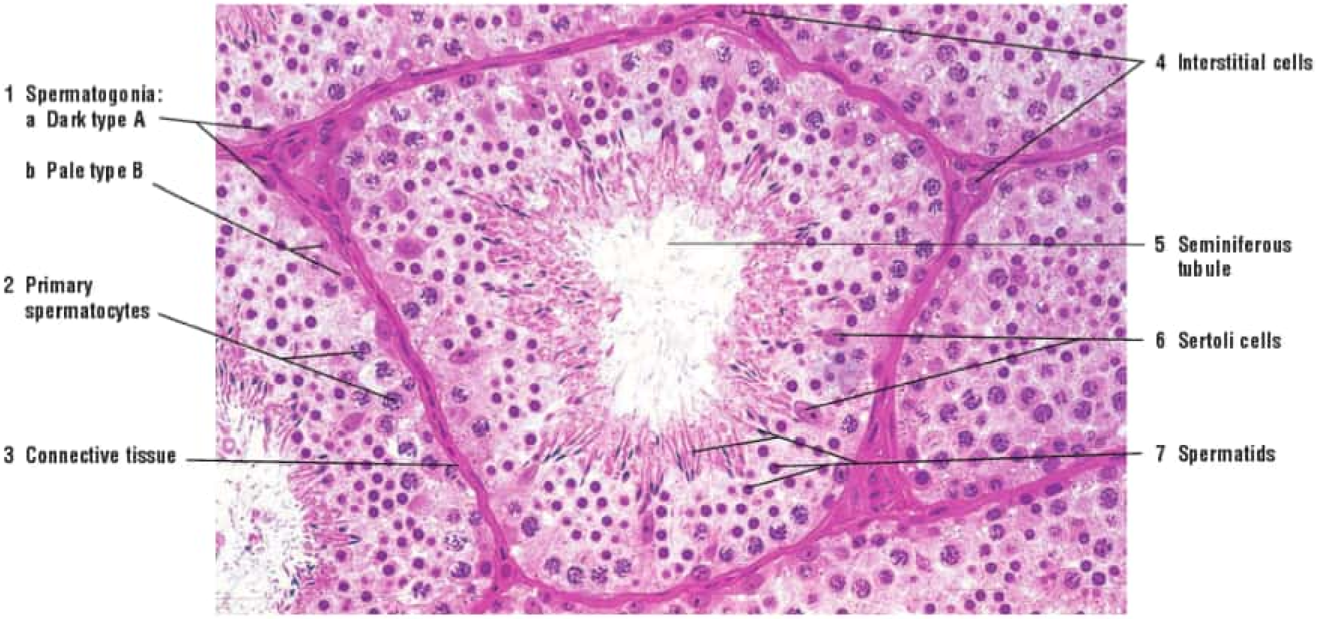

1 Spermatogonia:
a Dark type A
b Pale type B
2 Primary spermatocytes
3 Connective tissue
4 Interstitial cells
5 Seminiferous tubule
6 Sertoli cells
7 Spermatids

FIGURE 18.5 ■ Testis: seminiferous tubules (transverse section). Stain: hematoxylin and eosin (plastic section). ×80.

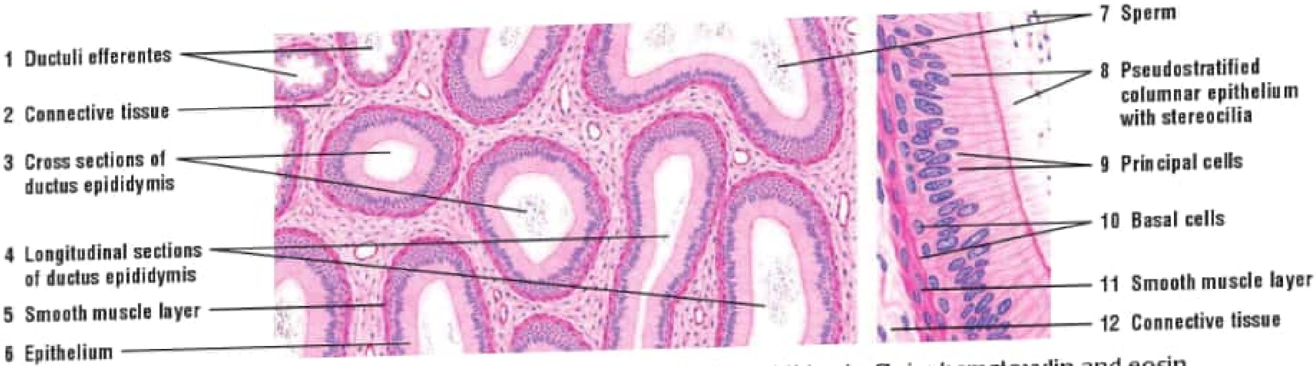

1 Ductuli efferentes
2 Connective tissue
3 Cross sections of ductus epididymis
4 Longitudinal sections of ductus epididymis
5 Smooth muscle layer
6 Epithelium
7 Sperm
8 Pseudostratified columnar epithelium with stereocilia
9 Principal cells
10 Basal cells
11 Smooth muscle layer
12 Connective tissue

FIGURE 18.6 ■ Ductuli efferentes and tubules of the ductus epididymis. Stain: hematoxylin and eosin. Left side, low magnification; right side, high magnification.

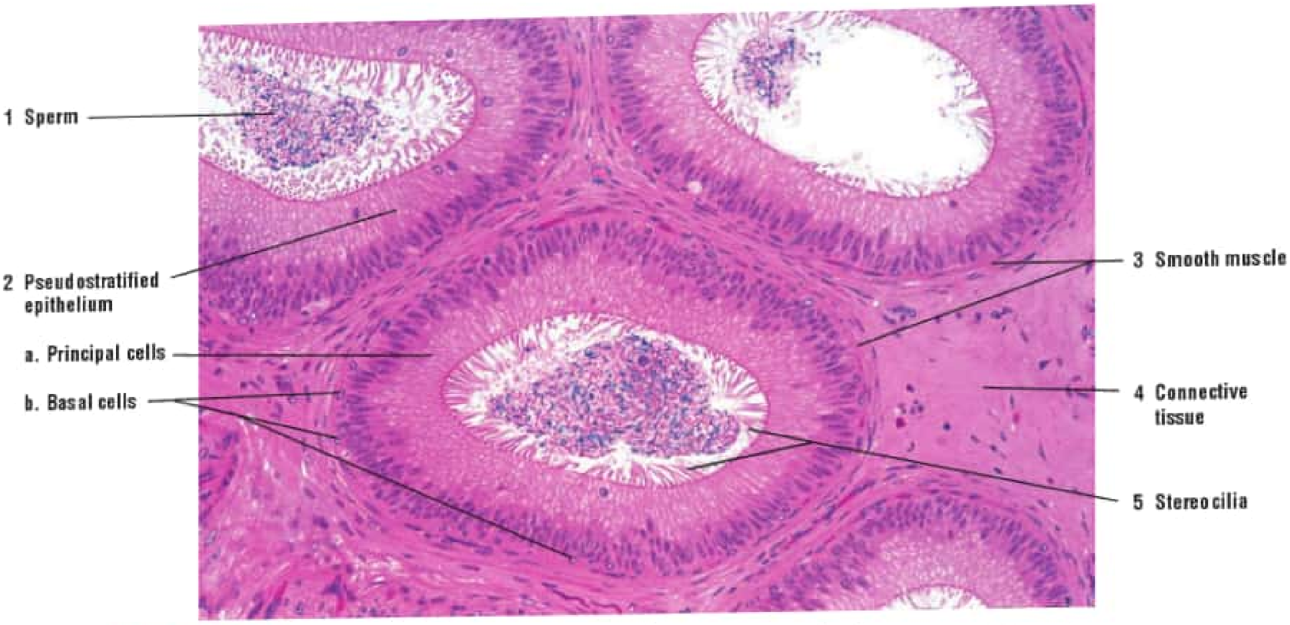

1 Sperm
2 Pseudostratified epithelium
a. Principal cells
b. Basal cells
3 Smooth muscle
4 Connective tissue
5 Stereocilia

FIGURE 18.7 ■ Tubules of the ductus epididymis (transverse section). Stain: hematoxylin and eosin (plastic section). ×50.

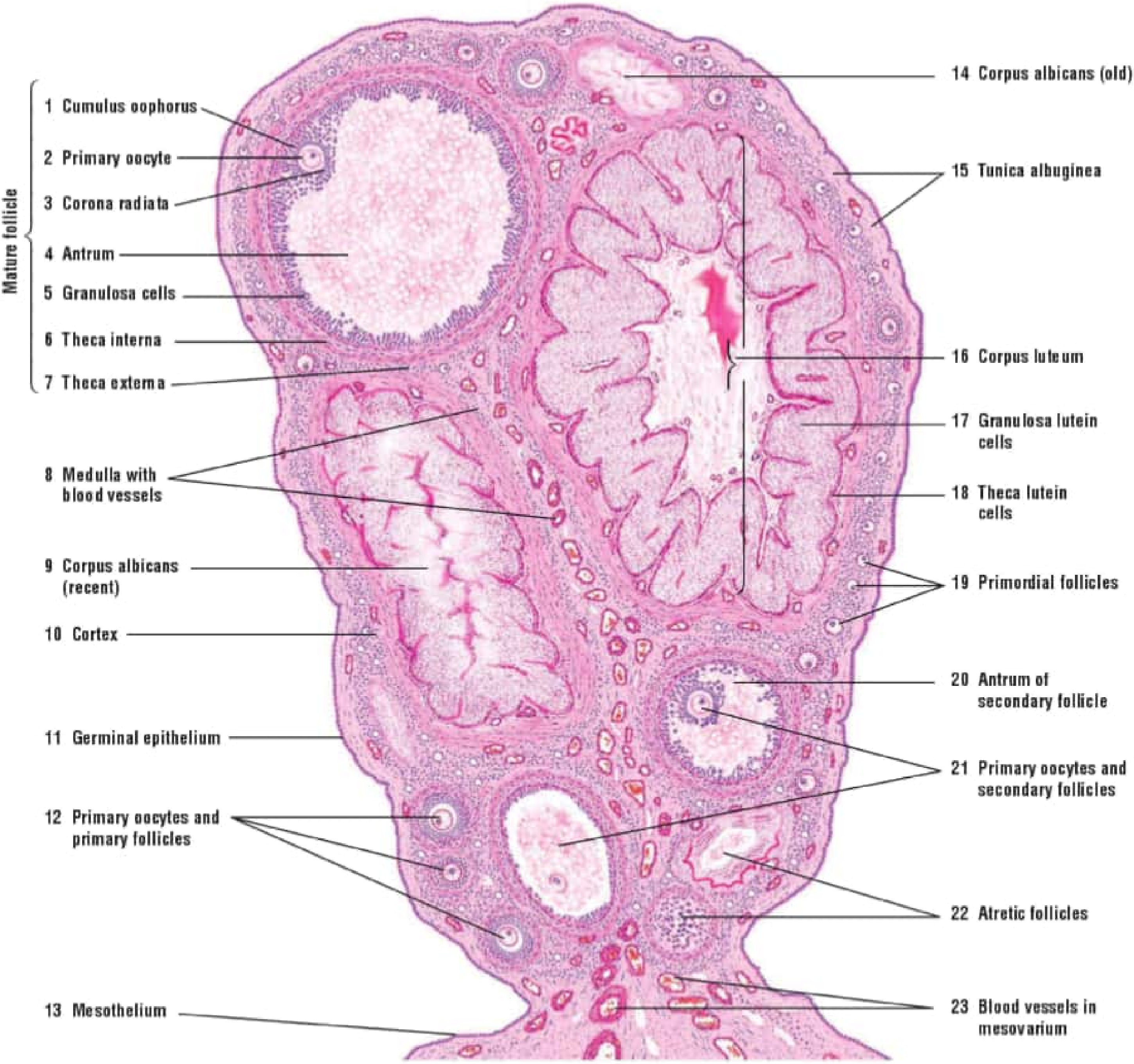

Mature follicle
1 Cumulus oophorus
2 Primary oocyte
3 Corona radiata
4 Antrum
5 Granulosa cells
6 Theca interna
7 Theca externa
8 Medulla with blood vessels
9 Corpus albicans (recent)
10 Cortex
11 Germinal epithelium
12 Primary oocytes and primary follicles
13 Mesothelium
14 Corpus albicans (old)
15 Tunica albuginea
16 Corpus luteum
17 Granulosa lutein cells
18 Theca lutein cells
19 Primordial follicles
20 Antrum of secondary follicle
21 Primary oocytes and secondary follicles
22 Atretic follicles
23 Blood vessels in mesovarium

FIGURE 19.1 ■ Ovary (panoramic view). Stain: hematoxylin and eosin. Low magnification.

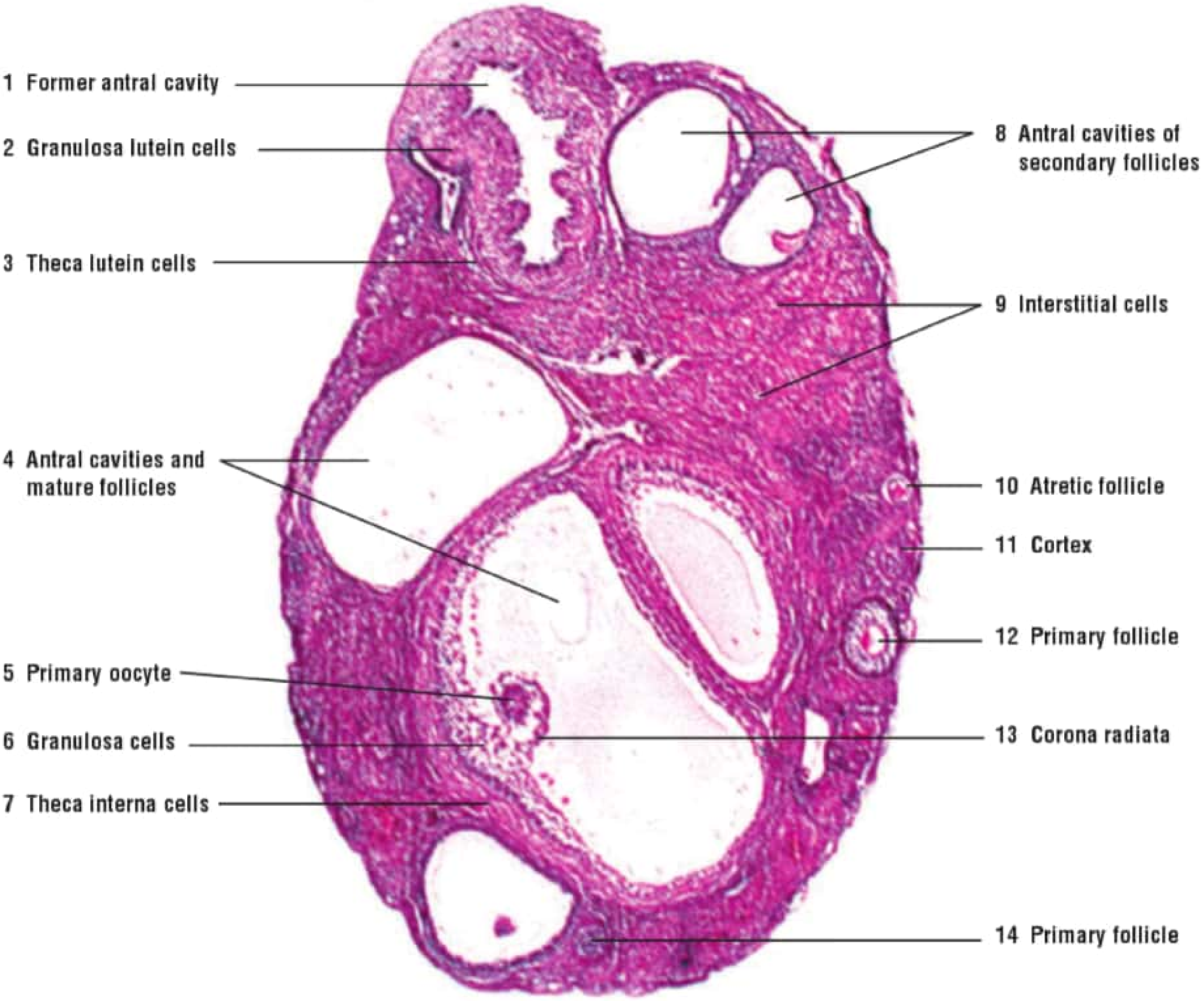

1 Former antral cavity
2 Granulosa lutein cells
3 Theca lutein cells
4 Antral cavities and mature follicles
5 Primary oocyte
6 Granulosa cells
7 Theca interna cells
8 Antral cavities of secondary follicles
9 Interstitial cells
10 Atretic follicle
11 Cortex
12 Primary follicle
13 Corona radiata
14 Primary follicle

FIGURE 19.2 ■ Ovary (European mink) (panoramic view). Mature follicles and the initial formation of the corpus luteum. Stain: hematoxylin and eosin. Low magnification. (The image is courtesy of Dr. Sergei Yakovlevich Amstislavsky, Institute of Cytology and Genetics, Russian Academy of Sciences, Siberian Division, Novosibirsk, Russia.)

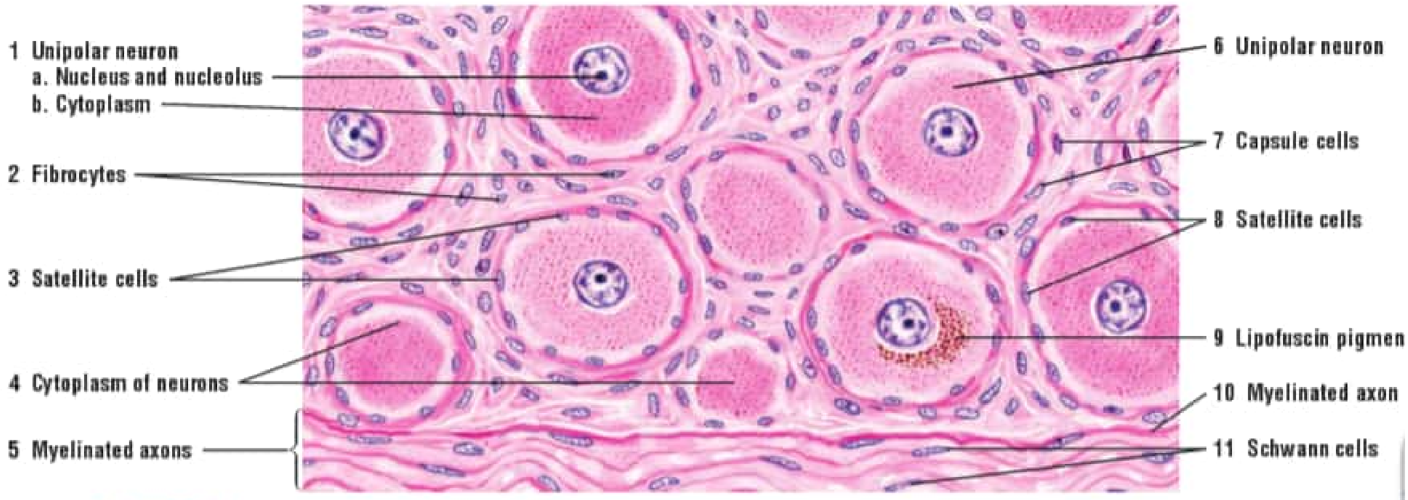

1 Unipolar neuron
a. Nucleus and nucleolus
b. Cytoplasm
2 Fibrocytes
3 Satellite cells
4 Cytoplasm of neurons
5 Myelinated axons
6 Unipolar neuron
7 Capsule cells
8 Satellite cells
9 Lipofuscin pigmen
10 Myelinated axon
11 Schwann cells

FIGURE 7.22 ■ Cells and unipolar neurons of a dorsal root ganglion. Stain: hematoxylin and eosin. High magnification.

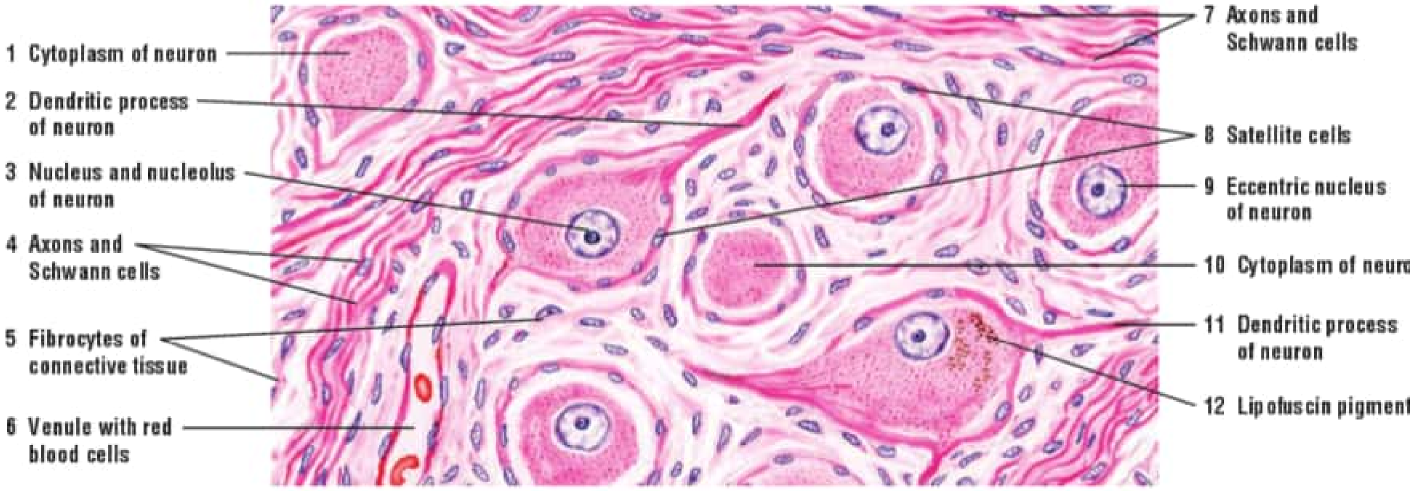

1 Cytoplasm of neuron
2 Dendritic process of neuron
3 Nucleus and nucleolus of neuron
4 Axons and Schwann cells
5 Fibrocytes of connective tissue
6 Venule with red blood cells
7 Axons and Schwann cells
8 Satellite cells
9 Eccentric nucleus of neuron
10 Cytoplasm of neuro
11 Dendritic process of neuron
12 Lipofuscin pigment

FIGURE 7.23 ■ Multipolar neurons, surrounding cells, and nerve fibers of the sympathetic ganglion. Stain: hematoxylin and eosin. High magnification.

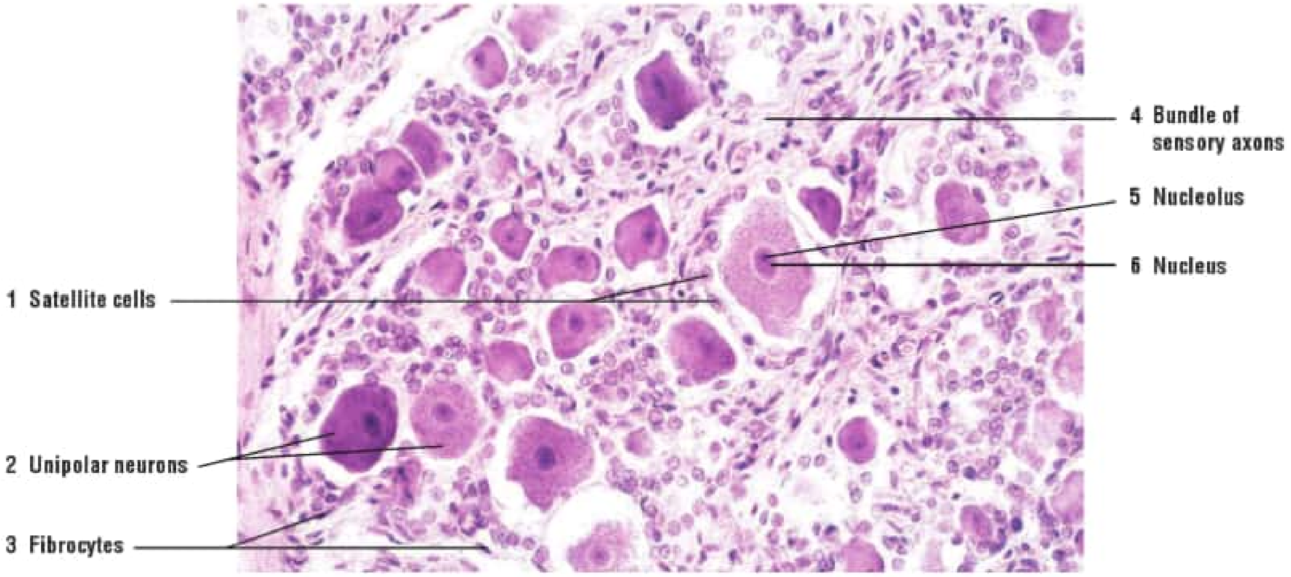

1 Satellite cells
2 Unipolar neurons
3 Fibrocytes
4 Bundle of sensory axons
5 Nucleolus
6 Nucleus

FIGURE 7.24 ■ Dorsal root ganglion: unipolar neurons and surrounding cells. Stain: hematoxylin and eosin. ×100.

وتُهدينا الحياةُ أضواءً في آخرِ النَّفق
تدعونا كيْ ننسى ألماً عِشناه

نستسلمُ لكنْ لا ما دُمنا أحياءً نُرزَق
ما دامَ الأملُ طريقاً فسنحيا

YMSH